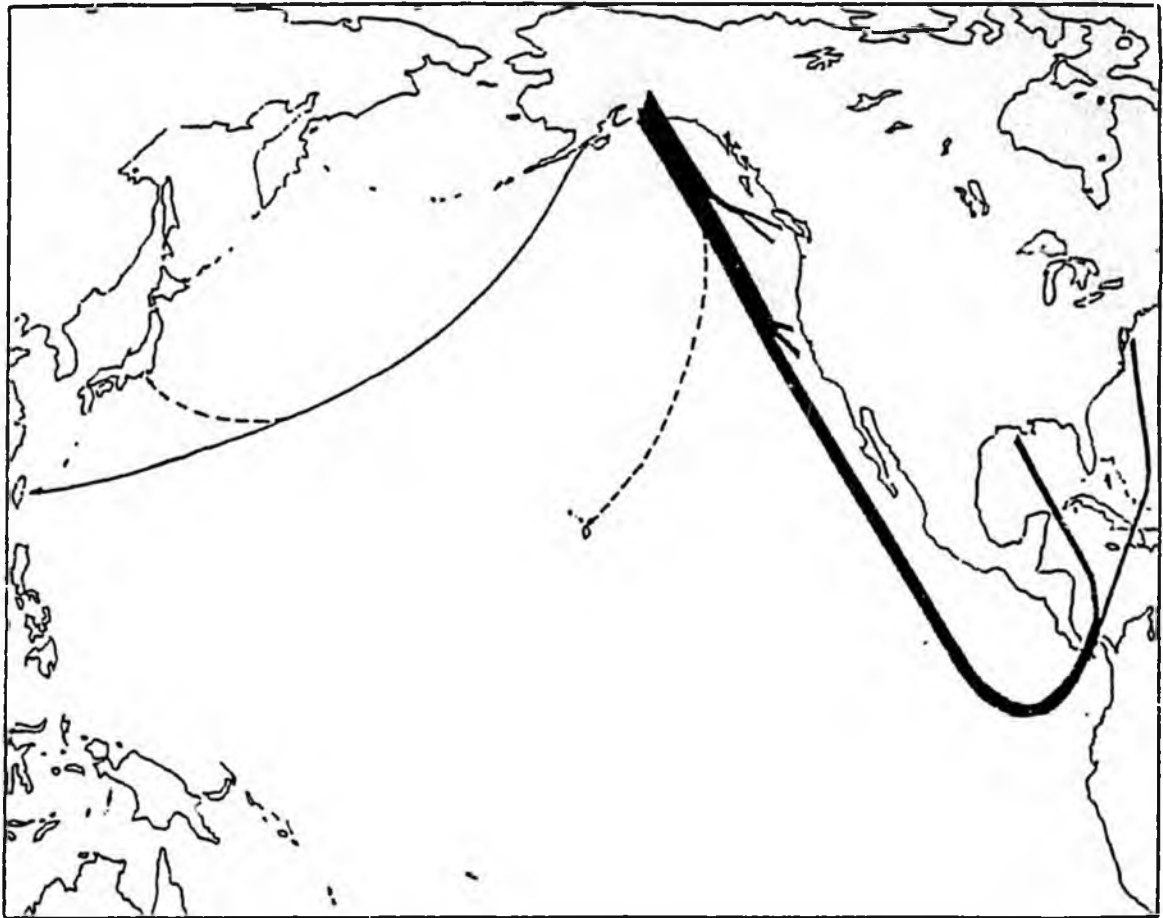


ALASKA LEGISLATURE COMMITTEE BILL FILES - 1987 - 1988 8879

HB 329 cont. *Leg. Finance* 336

PETROLEUM PRODUCTION REVENUE FORECAST



QUARTERLY REPORT
JUNE 1987

DEPARTMENT OF REVENUE
STATE OF ALASKA

STEVE COMPER, GOVERNOR

STATE OF ALASKA

DEPARTMENT OF REVENUE

OFFICE OF THE COMMISSIONER

STEVE COWPER, GOVERNOR

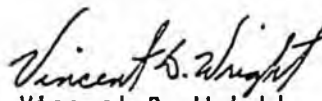
P.O. BOX 5
JUNEAU, ALASKA 99811-0400
PHONE: (907) 465-2300

June 8, 1987

To the Reader of the Revenue Sources FY 87-89 (June 1987) and Petroleum Production Revenue Forecast (June 1987)

The revenue forecast presented in these publications has been prepared by economists and research staff of the Department of Revenue in accordance with the highest professional standards. It has been reviewed and adopted by myself as the Department's best judgment of revenues to be received by the State of Alaska over the prescribed forecast period. The Department of Revenue has historically been and remains solely and exclusively responsible for the preparation of these quarterly forecasts. The experience of recent years involving frequent and significant revisions in estimated revenues is due to the inherent difficulty of predicting the movements in the price of crude oil--a commodity whose volatility over the last decade cannot be exaggerated. This volatility combined with the State of Alaska's almost complete dependence on oil revenues, which in recent years account for almost 85 percent of total revenues, can sometimes lead to dramatic and unavoidable changes in the forecast.

Sincerely,


Vincent D. Wright
Chief of Research

PETROLEUM PRODUCTION
REVENUE FORECAST

QUARTERLY REPORT
June 1987

STATE OF ALASKA
STEVE COWPER, GOVERNOR

HUGH MALONE, COMMISSIONER
Department of Revenue

VINCENT WRIGHT, CHIEF
Research Section
Department of Revenue

This Publication was Prepared by
Dr. Charles Logsdon, Petroleum Economist
Roger Marks, Petroleum Economist
Eric Hansen, Economist
J. William Moore, Operations Research Analyst

HOW THIS FORECAST WAS MADE

Many factors or variables can affect Alaska's petroleum revenues. This report takes into account over 400 dependent and independent variables, ranging from the amount of oil flow in TAPS to the degree of OPEC price changes. The number of possible combinations of all these different factors is virtually endless. An indication of the range of outcomes can be obtained from a sample of these combinations. The principles of statistics allow one to test the reliability of that sample and to find the projected revenue figure which minimizes the likely error between what is projected and what is received. To eliminate bias in the selection of the sample, a computer makes random choices of variables. If 500 combinations make up the sample, then the computer calculates the average of all of those combinations and provides data used to create many of the tables and graphs appearing in this forecast. Some of these tables and graphs depict a range of probability indicating how far the results could differ from the average and/or what the likelihood is for revenues to differ substantially from that average.

As an additional forecasting tool, the Department of Revenue has developed a model which gives explicit consideration to the economic feasibility of developing potential petroleum deposits. A full explanation of this model is available on request.

Starting in March 1982, a conscious effort was made to introduce an additional measure of prudence or caution into the revenue projections by reporting, as the single point estimate of revenues, the revenue expectation corresponding to the 30 percent cumulative distribution of possible revenue outcomes. Since this estimate depicts a revenue stream which the Department of Revenue feels will have a 70 percent chance of being exceeded, it automatically builds in a safety margin. The magnitude of the safety margin will vary from forecast to forecast and from year to year, since it is based on a subjective assessment by the Department of Revenue of the array of possible outcomes for the numerous variables included in the forecast. Please see Table 17 and Graph 9, which illustrate the magnitude of the hedge or risk adjustment assumed in this forecast. By using the 30 percent case, the reported forecast numbers can be expected to fluctuate from forecast to forecast, even if the possible outcomes remain the same, because events viewed with extreme uncertainty in one time period become less uncertain in the next time period. In the short term, this means that the 30 percent revenue outcome will tend to converge to the mean outcome as more data on those short term revenues becomes available. (See Table 25)

It cannot be stressed enough that the forecasting of petroleum production revenues very far into the future is an extremely speculative activity. Because of the dramatic effects of compounding, small changes in assumptions about the behavior of key variables, such as oil prices and/or inflation, can produce widely different projections of oil revenues. For this reason, the reader is cautioned to examine annual revenue projections in the context of the full range of possible revenue outcomes as presented in the probability distributions of Graphs 10-12 and Tables 18-20.

CONTENTS

SECTION	PAGE
EXECUTIVE SUMMARY.....	1
SHORT TERM MARKET ANALYSIS.....	3
FORECAST ASSUMPTIONS.....	8
Inflation.....	8
North Slope Oil Prices.....	8
North Slope Gas Prices.....	12
North Slope Oil Production.....	13
North Slope Gas Production.....	13
Cook Inlet Oil Prices.....	14
Cook Inlet Gas Prices.....	14
Cook Inlet Oil Production.....	14
Cook Inlet Gas Production.....	14
FORECAST TRACK RECORD.....	35
PETREV ACCURACY.....	36
APPENDIX A: U.S. Delivered Prices for ANS and OPEC Marker.....	37
APPENDIX B: Revenue Sources Summary FY 1986 - FY 1989.....	39

LIST OF FORECAST TABLES

TABLE	PAGE
1. World Oil Production: 1987.....	3
2. First Through Third Quarter 1987 "Balance Sheet".....	5
3. Expectation for Inflation.....	8
4. Selected Crude Oil Price Comparison.....	9
5. Average Expected World Prices.....	10
6. Average ANS Sales Prices.....	11
7. Average Expected ANS Wellhead Values.....	12
8. TAPS Tariff by Field.....	12
9. Prudhoe Bay and Total Alaska Simulated Production.....	15
10. Kuparuk, West Sak, Lisburne, and Endicott Simulated Production...	16
11. Milne Pt., Cook Inlet, Other On/Offshore Simulated Production....	17
12. State of Alaska Petroleum Production Revenue Forecast for FY 1987-FY 2003.....	18
13. North Slope and Cook Inlet Petroleum Production Revenue Forecast Collections for FY 1987-FY 2003.....	19
14. Comparison of June 1987 and March 1987 State of Alaska Petroleum Production Revenue Forecasts for FY 1987-FY 2003.....	20
15. Projected State of Alaska Permanent Fund Contributions for FY 1987-FY 2003.....	21
16. Constant Dollar Petroleum Production Revenue Forecast for FY 1987-FY 2003.....	22
17. Comparison of Projected Average Expected and Risk-Adjusted Petroleum Production Revenues for FY 1987-FY 2003.....	23
18. Cumulative Frequency Distributions of Annual Severance Tax Collections for FY 1987-FY 2003.....	27
19. Cumulative Frequency Distributions of Annual Royalties for FY 1987-FY 2003.....	28
20. Cumulative Frequency Distributions of Total Annual Production Revenue for FY 1987-FY 2003.....	29

21.	North Slope and Cook Inlet Petroleum Production Revenue Forecast Monthly Cash Flows for FY 1987-FY 1988.....	29
22.	Cumulative Frequency Distributions of Monthly Severance Tax Collections for FY 1987-FY 1988.....	30-32
23.	Cumulative Frequency Distributions of Monthly Royalty Collections for FY 1987-FY 1988.....	33
24.	Cumulative Frequency Distributions of Monthly Total Production Revenue for FY 1987-FY 1988.....	34
25.	A Comparison of Prior FY 1987 Petroleum Production Revenue Forecasts.....	35
26.	Actual and Estimated FY 1987 Cash Flows.....	36
APPENDIX A:		
1A.	Actual and Expected Crude Oil Prices for ANS and OPEC Marker.....	37
2A.	Actual and Expected Crude Oil Prices for ANS and OPEC Marker.....	38

LIST OF FORECAST GRAPHS

GRAPHS	PAGE
1. Gulf Coast Weighted Average ANS Sales Prices.....	3
2. Actual and Average Expected Monthly Prices for ANS and Saudi Medium Crude Oil.....	10
3. Actual and Average Expected Annual Prices for ANS and Saudi Medium Crude Oil.....	11
4. Prudhoe Bay and Total Alaska Simulated Production.....	15
5. Kuparuk, West Sak, Lisburne, and Endicott Simulated Production....	16
6. Milne Pt., Cook Inlet, Other On/Offshore Simulated Production....	17
7. Projected 95th Percentile, Risk Adjusted, Mean and 5th Percentile Values for Severance Tax Collections for FY 1987-FY 2003.....	24
8. Projected 95th Percentile, Risk Adjusted, Mean and 5th Percentile Values for Royalty Collections for FY 1987-FY 2003.....	24
9. Projected 95th Percentile, Risk Adjusted, Mean and 5th Percentile Values for Total Production Revenues for FY 1987-FY 2003.....	25
10. Cumulative Frequency Distributions of Annual Severance Tax Collections for FY 1987-FY 2003.....	26
11. Cumulative Frequency Distributions of Annual Royalties for FY 1987-FY 2003.....	28
12. Cumulative Frequency Distributions of Total Annual Production Revenues for FY 1987-FY 2003.....	29
13. Cumulative Frequency Distributions of Monthly Severance Tax Collections for FY 1987-FY 1988.....	31
14. Cumulative Frequency Distributions of Monthly Royalty Collections for FY 1987-FY 1988.....	32
15. Cumulative Frequency Distributions of Monthly Total Production Revenues for FY 1987-FY 1988.....	34

EXECUTIVE SUMMARY
(Dr. Charles L. Logsdon)

Results of This Forecast

Stable oil prices at or near the official OPEC levels combined with a public commitment by most OPEC producers to the current production quotas, result in an upward revision in the estimates of near term petroleum production revenues. Broadly speaking, this forecast assumes oil prices for Alaska North Slope (ANS) oil at the U.S. Gulf will, on average, increase from \$16.00/bbl to \$20.00/bbl over the next 5 years. Wellhead values will increase by a greater extent, as the TransAlaska Pipeline System (TAPS) tariff decreases as a result of the recently adopted TSM tariff method. Average expected TAPS throughput is assumed to peak in FY 1989 at 1.885 million bbl/day, declining at roughly 6.0 percent per year thereafter.

Short Term (FY 1988 - FY 1989)

This time period will most likely witness the last years of Prudhoe Bay production at the 1.5 million bbl/day Maximum Efficient Rate of Production (MER). This, in combination with new production from the Lisburne and Endicott fields, should see North Slope oil production at its peak. It is expected that oil prices will continue to be quite volatile, though increasing consumption should cause prices to drift upward if OPEC can continue to control the incremental barrels of oil entering the market. The scheduled reduction in severance tax rate on Prudhoe Bay, from an effective rate of 15 percent to approximately 12.6 percent, will reduce average expected severance tax collections by approximately \$82.40 million in FY 1988 and \$104.28 million in FY 1989.

Petroleum production revenue estimates are up by \$50.44 million in FY 1987 and \$196.02 million in FY 1988. These estimates represent the average expected revenues in FY 1987 and the 30 percent or risk adjusted estimates for FY 1988.

Intermediate Term (FY 1990 - FY 1992)

Risk adjusted petroleum production revenues should remain relatively constant in nominal dollar terms over this time period at around \$1300 million. An upward drift in oil prices should tend to offset lower production from the mammoth Prudhoe Bay field. The key to price over this period, as is the case today, will continue to be OPEC's ability to meet an increasing call on their production without causing a market destabilizing glut.

Risk adjusted petroleum production revenues for FY 1990-FY 1992 are \$166 million lower than projected in March.

Long Term

The 1990's and beyond will witness the continuing decline of Prudhoe Bay and other currently producing North Slope oil fields. Although future discoveries may be made in the Beaufort Sea or in the Arctic National Wildlife Refuge, it is likely that additional production will depend greatly on enhanced recovery from existing fields and production of heavy oil. Higher prices, due to increasing concentration of low cost oil reserves in the hands of a few countries, should stimulate these kinds of developments in Arctic Alaska.

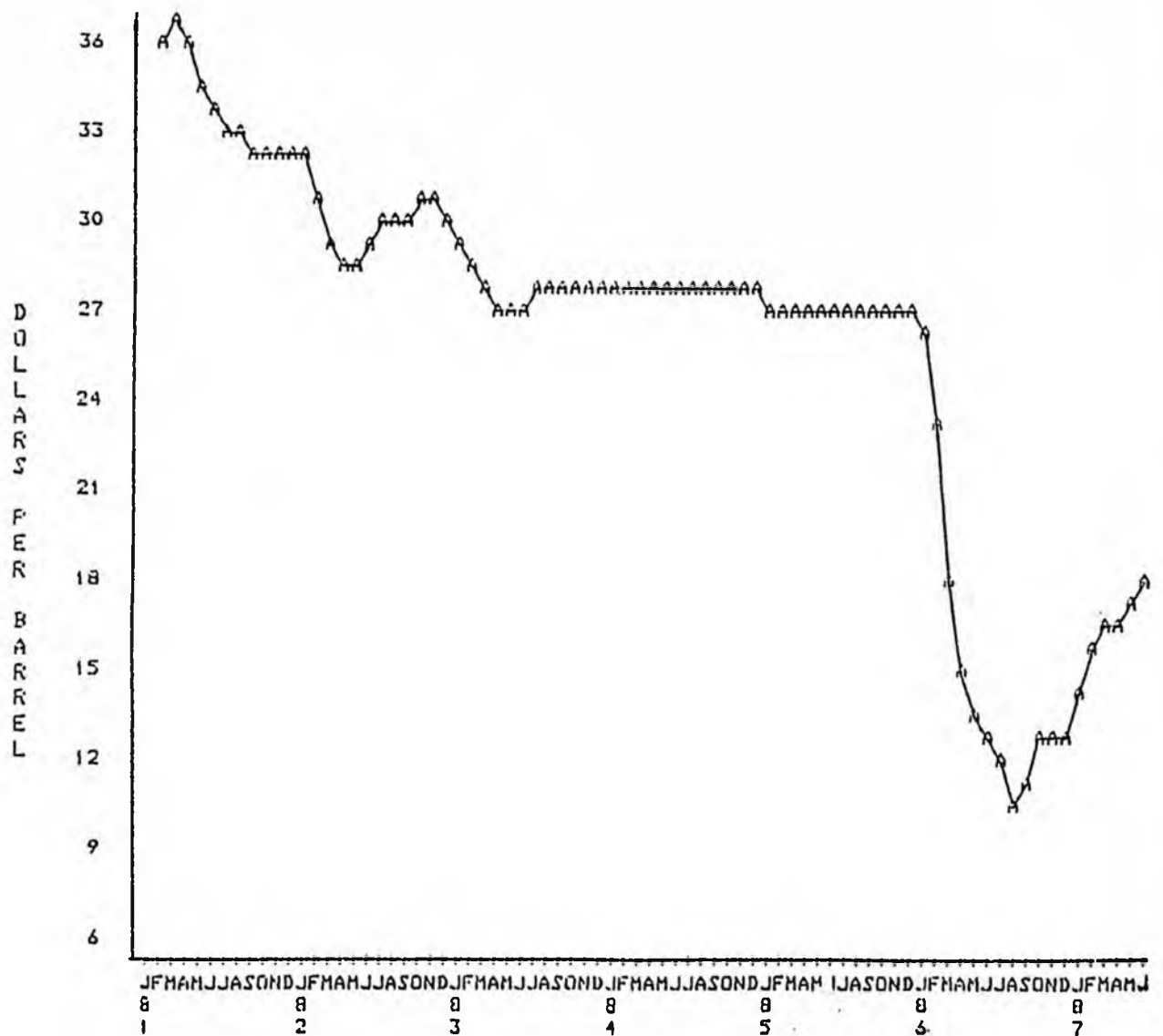
In this forecast no new discoveries are assumed, although enhanced recovery and development of known deposits of heavier crude oil are evaluated. North Slope oil production, on average, is expected to be one-half the current level by FY 1999.

The expected level of risk adjusted petroleum production revenues is \$1556 million lower between FY 1995 and FY 2003 than projected in March's forecast. This is a result of lower average expected real price growth. It should be stressed that these are nominal dollars.

SHORT-TERM MARKET ANALYSIS
(Roger Marks)

Graph 1 shows the reported price of Alaska North Slope (ANS) crude oil delivered to the Gulf of Mexico. (The March - June 1987 figures are estimates.) Prices have increased and stabilized near \$17 a barrel since OPEC's price and output accords became effective in January. OPEC has a meeting scheduled at the end of June, where price and quotas will no doubt be debated.

ANS GULF COAST PRICE



Graph 1.

Table 1 shows recent estimates of OPEC and non-OPEC production behavior. Note that April marked the first increase in output over previous monthly levels since the quotas were instituted. The quotas are, however, measured on a quarterly basis, and the first month of the first quarter (January) had the highest output (on par with April, the first month of the second quarter), and the first quarter quota was subsequently met. Pursuant to the OPEC accords, quotas are to be increased to 16.6 million barrels per day (mmbd) for the third quarter, and 18.3 mmbd for the fourth quarter. Many of the countries have planned budgets based on these increases.

Table 1.
World Oil Production 1987
(mmbd)

	<u>Estimated</u>				<u>Jan.-Mar.</u>	<u>Current</u>
	<u>Apr.</u>	<u>Mar.</u>	<u>Feb.</u>	<u>Jan.</u>	<u>Avq.</u>	<u>Quota</u>
OPEC						
Saudi Arabia	3900	3100	3600	3700	3462	4133
Iran	2200	2100	1650	2200	1994	2255
Iraq	1900	1700	1670	1650	1673	1466
Kuwait	950	950	950	1000	957	948
UAE	1185	1155	1175	1195	1175	902
Qatar	250	200	250	285	245	285
Neutral Zone	380	380	430	500	437	1/
Venezuela	1690	1690	1640	1650	1661	1495
Nigeria	1230	1230	1138	1240	1205	1238
Indonesia	1280	1263	1250	1280	1265	1133
Libya	950	850	950	950	916	948
Algeria	600	600	600	600	600	635
Gabon	150	150	150	150	150	152
Ecuador	0	45	260	270	189	210
TOTAL OPEC	16665	15413	15713	16670	15939	15800
NON-OPEC						
United States	8438	8433	8277	8437	8386	
North Sea	3675	3667	3746	3882	3766	
Mexico	2510	2510	2510	2511	2510	
Soviet Union	12500	12480	12360	12385	12410	
China	2575	2575	2575	2575	2575	
Other	12291	12295	12409	12442	12381	
TOTAL NON-OPEC	41989	41960	41877	42232	42028	
TOTAL WORLD	58654	57373	57590	58902	57967	

1/ Incorporated in Saudi Arabia's and Kuwait's quotas.

Source: Petroleum Intelligence Weekly

Saudi Arabia has re-assumed its role of swing producer, adjusting its output so that total output is consistent with targeted price levels. Its first quarter revenue, however, is reportedly down 9 percent over the previous year's level, while the rest of OPEC is up 25 percent. Mounting budget and

balance of payment deficits, and shrinking monetary reserves and net foreign assets, may limit Saudi Arabia's ability to function in this role. Monetary reserves are now only a tenth of what they were in 1981, and half of their net foreign assets are extremely illiquid, such as war loans to Iraq. Saudi Arabia had the largest OPEC production increase in April.

Iraq is producing as much as it can to finance its war with Iran, and has publicly insisted on a quota on par with Iran. They will soon complete a second pipeline through Turkey, enabling them to export another 0.5 (mmbd) through the Mediterranean. This will be a 25 percent increase in production for them, and put them 1 mmbd over quota. Although this pipeline was scheduled for completion in August, recent reports suggest it may be delayed until September. The two countries have agreed on the construction of a third pipeline, 240 km long, from Iraq's Ain Zalah fields to the Batman refinery center in eastern Turkey. It will supply about 70,000 b/day of crude. Another pipeline, through Saudi Arabia, is due for completion in 18 months and will carry 1.5 mmbd to the southern Persian Gulf port of Yanbu.

Iran has recovered from past war damage and is now, unexpectedly, approaching its quota. The United Arab Emirates (UAE) are now 0.3 mmbd over quota, and are publicly requesting a quota increase. They have not mentioned numbers but they are capable of producing 4 mmbd. OPEC has been helped by the plight of Ecuador. The severe earthquake in March there has shut down all production, and it is expected Ecuador will overproduce when they resume production in August.

OPEC production for the first quarter was 1.6 mmbd below 1986 levels, a reduction of nearly 9 percent. Non-OPEC production is up 0.4 mmbd. In the near term summer maintenance in the North Sea will remove an estimated 0.6 mmbd from the market. This may give OPEC an unrealistically optimistic picture upon which to adjust their existing accords.

Table 2 displays the elements that will influence price over the next six

Table 2.
First Through Third Quarter 1987 "Balance" Sheet
(Million bbls/day)

		<u>I</u>	<u>II</u>	<u>III</u>
Consumption	OECD	35.9	34.1	34.8
	Non-OECD	11.9	12.0	12.0
	TOTAL	47.8	46.1	46.8
Production	Non-OPEC	28.0	28.3	29.0
	OPEC			
	Crude	15.7	16.6	16.3
	NGL	1.4	1.4	1.4
	Total	17.1	18.0	17.3
	TOTAL	45.1	46.3	46.7
	Stock Draw	2.7	-0.2	0.1

months. The consumption and non-OPEC production figures were supplied from the International Energy Agency (IEA). Note that second quarter consumption is forecasted to decline by 1.7 mmbd. Also note that despite the temporary North Sea cutback, non-OPEC production is forecasted to increase by 0.3 mmbd, due to large increases in Soviet exports. As a result a negative stock draw, i.e., an increase in stocks, appears likely.

Table 2 shows the estimate of the amount of OPEC production (or reserve) necessary to bring stock levels into line with 1985 amounts, adjusted for consumption (1986 stock levels were very high due to the surfeit of cheap netback crude). Current (end of April 1987) world stock levels are at 3290 mmbbl. September 1985 levels (adjusted for current consumption) were 3277 mmbbl. That would suggest a 13 mmbbl stock drawdown over 150 days, or 0.1 mmbd. This implies free world production at 46.7 mmbd, OPEC production at 16.3 mmbd (0.5 mmbd over the current quota), and Saudi production at 3.5 mmbd for the next two quarters.

Note that the current stock level mentioned above is for stocks on land only, while waterborne stocks are now considerable. That land stock figure (142 mmbbl over last year) covers 98 days of forward consumption, as high as it's ever been other than 1986. In 1973, land stocks were equivalent to 65 days forward consumption. In the U.S., crude and product stocks are 34 mmbbl (5%) higher than last year's high level, and the current stock draw is about 1 mmbd. Motor gasoline stocks are 31 mmbbl (15 percent for all gasoline, 32 percent for unleaded) over last year, and the stock draw is 0.7 mmbd.

Besides OPEC production practices, the near-term fate of oil prices will rest in part with refiner behavior. Refiners profit most with low crude prices and high product demand, and will not deliberately reinforce OPEC prices. At the end of last year, when OPEC returned to fixed prices, refiners were awash in cheap netback crude that had profit margins built into every purchase. Since OPEC still appeared to be unstable and prices could once again decline, refiners were not eager to buy more at the higher fixed prices. They insisted on built-in volume flexibility on the contracts they cut with OPEC, so in essence the contracts were short term.

The situation is not that much different now. Short-term refinery economics are determining OPEC output. Inventories are being worked off but the specter of higher prices has spurred some buying. As long as OPEC does not produce more than the refiners order, and does not discount, prices should remain stable. What may haunt OPEC are high gasoline stocks, lower gasoline demand (spot gasoline prices are nearly 60 percent higher than a year ago, albeit gasoline demand is fairly inelastic), and increased April production volumes arriving in the U.S. in June.

Two issues OPEC may have to explicitly address soon are differentials and countertrade. The current price structure for the different OPEC crudes, established in December, and more germane to then, does not reflect the current market. Price differentials among crudes reflect product prices, seasonality, inventories, refinery utilization rates, and modes of operation. Given the rigidity of the OPEC accords, they cannot change fast enough. If the crude is overpriced there may be a tendency to shave prices, and if underpriced a tendency to overproduce.

The OPEC accord does not restrict barter or countertrade. When such transactions do not involve integrated oil companies, the crude can find its way to the spot market and usually be discounted, which will undermine term supply contracts. As a matter of fact, for the first time since late 1985, spot transactions for OPEC crudes started appearing in April, at prices under official levels.

FORECAST ASSUMPTIONS
(Dr. Charles L. Logsdon; Eric Hansen)

Inflation

Higher interest rates, a sizeable trade deficit in the face of a devalued dollar, and escalating energy costs suggest that higher rates of inflation may be a fact of life in 1987. A wide variety of possible rates of inflation are considered in this forecast and are summarized in Table 3.

Table 3
Expectation for Inflation
(Percent)

Fiscal Year	Average Rate	Confidence Band	
		Lower 95%	Upper 95%
1987	3.59	2.37	7.41
1988	5.42	3.08	7.94
1989	5.42	3.49	8.01
1990-1994	6.35	3.08	10.66
1995-1999	6.65	3.08	16.10
2000-Beyond	6.86	3.08	12.44

North Slope Oil Prices

International Market

World oil prices have remained stable at levels at, or above, official levels since March. Although there is some evidence of excessive inventories relative to demand, fundamental market statistics suggest oil prices are in equilibrium. Prior to the upcoming June OPEC meeting, OPEC members, including the members of the Gulf Cooperation Council (Saudi Arabia, Kuwait, the United Arab Emirates, Oman, Bahrain, and Qatar), Nigeria, Indonesia, and Venezuela all called for a continuation of the current quotas and pricing structure. Should the current OPEC agreement be extended, the main threats to the stability of the current market would be as outlined below:

1. Iraq has no official quota and could theoretically increase its production by year-end to more than one million bbl/day in excess of its "deemed" quota.
2. It is unclear what the call on OPEC will be in the third and fourth quarters of this year. The International Energy Agency has continued to reduce its estimates of consumption for the remainder of 1987. Therefore, it is not clear whether quota increases allowed under the current agreement could be accommodated without destabilizing crude oil prices.
3. Continued increases in OPEC product exports and barter

sales and counter trades allow effective production exports in excess of quotas and, as a result, may be self defeating.

4. Current prices are high enough to stimulate the search for and development of non-OPEC oil reserves, particularly if prices are perceived as remaining at the current level for any length of time. This could restrict the growth in OPEC's market share.

The current official OPEC price structure for a number of representative crude oils is given in Table 4.

Table 4.
Price Comparison
(\$/bbl)

Saudi Light	\$17.52
Iran Light	17.50
Saudi Medium	16.92
Saudi Heavy	16.27
Bonny Light	18.92
Forcados	18.52
Mandji	17.32
Minas	17.56
Oriente	17.02

In this forecast, it is assumed that prices will remain at official levels through year-end, when it is expected that price will weaken somewhat before rebounding next summer. The downside risk for oil prices is very real, as is the potential for extreme variability. As a result, this forecast assumes a wide range of possible future oil price paths. The average expected world crude oil prices for ANS quality crude oil, entered as input into the forecast model, are shown in Table 5.

Table 5
Average Expected World Prices
(\$/bbl)

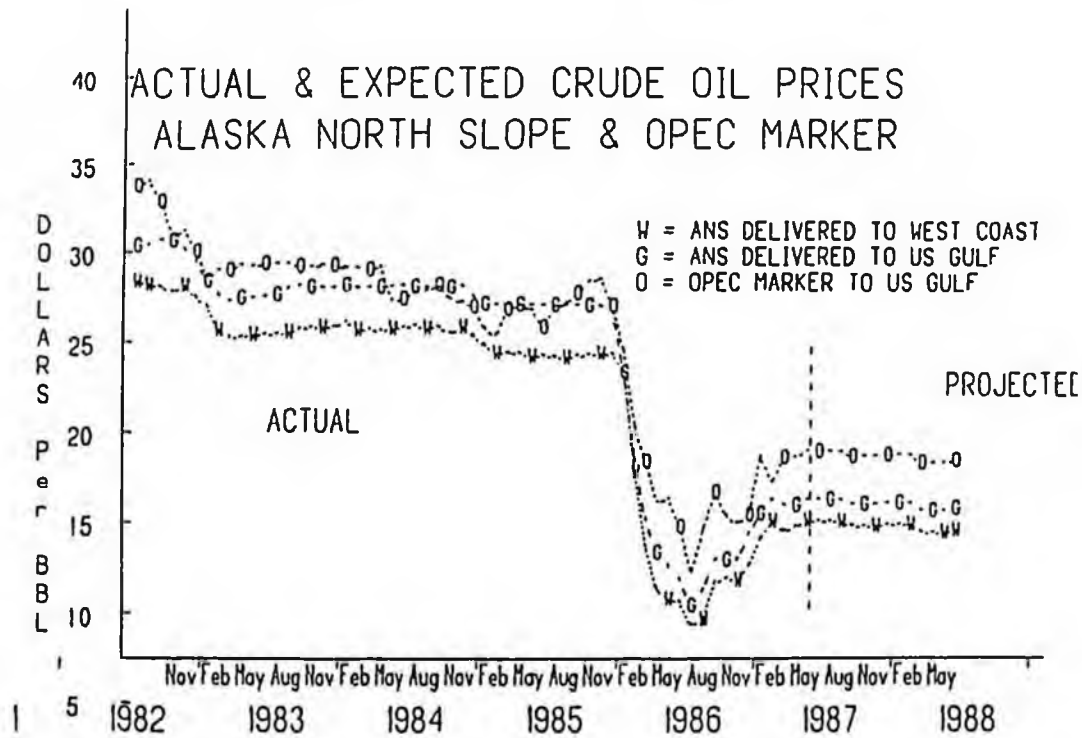
Fiscal Year	Nominal Marker Price	Real (1986) Marker Price
1987	14.95	14.95
1988	17.00	16.41
1990	17.83	15.49
1995	24.69	15.76
2000	35.15	16.26

Domestic Market

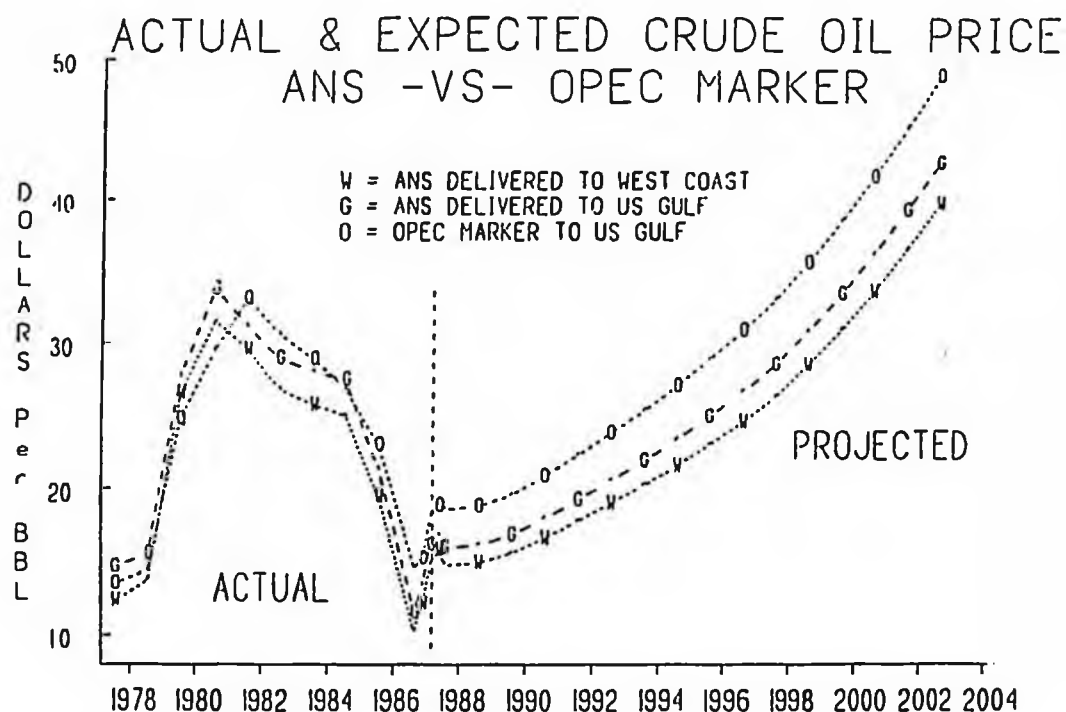
Postings for domestic sour crudes are currently running between \$17.00/bbl and \$17.50/bbl. Standard Oil recently announced ANS prices of \$17.25/bbl on the West Coast and \$18.25/bbl on the Gulf Coast. The absence of Ecuador Oriente on the market may partially explain the current strength in the price of ANS suggested by this move. Once Ecuador is again able to export oil, ANS prices may be subject to some downward pressure particularly for Gulf Coast sales.

U.S. production has fallen an estimated 660,000 bbl/day in the face of lower oil prices. To meet the higher oil consumption which the lower prices encourage, therefore, the U.S. must import more oil. As long as imports continue to grow, the outlook for higher prices improves because the domestic market will become more susceptible to supply shortfall to the extent that free trade in oil can be disrupted or controlled at the international level.

Graphs 2 and 3 show actual and forecast prices for ANS sold in the U.S. and for the OPEC Marker crude on a monthly and annual basis. The OPEC Marker used in this forecast is Saudi Medium. Prices associated with these graphics may be found in Appendix A, pages 37 and 38, respectively.



Graph 2.



Graph 3

The weighted average sales prices of ANS on the West Coast and Gulf Coast, and the weighted average wellhead prices between February 1986 and February 1987, according to producer reports, are shown in Table 6.

Table 6.
Average ANS Sales Prices
(\$/bbl)

<u>Month</u>	<u>Wellhead</u>	<u>West Coast</u>	<u>Gulf/East Coast</u>
February	10.74	17.73	18.32
March	7.23	13.65	15.07
April	5.38	11.31	13.27
May	4.82	10.73	12.54
June	4.18	10.62	11.81
July	3.17	9.27	10.39
August	3.76	9.62	11.18
September	5.70	11.63	12.88
October	5.98	11.90	12.88
November	5.77	11.78	12.88
December	6.87	12.57	14.34
January 1987	8.70	14.03	15.43
February	9.78	15.02	16.23

The average expected annual wellhead price assumed for ANS crude oil, based on average North Slope expected production and royalties as calculated in the simulation model, are found in Table 7.

Table 7.
Average Expected ANS Wellhead Values

Fiscal Year	Nominal Wellhead	Real (1986) Wellhead
1987	7.03	7.03
1988	9.90	9.56
1990	11.70	9.84
1995	18.29	11.67
2000	28.80	13.32

Transportation Costs

Tariffs for the TAPS are based on the recently approved TSM ratemaking methodology. Average expected tariffs for FY 1987 through FY 1990 are \$4.25, \$3.59, \$2.84, and \$2.91/bbl. Tariff filings for calendar 1987 by crude origin are shown on Table 8.

Table 8.
TAPS Tariff by Field

<u>Oilfield</u>	<u>TAPS Tariff</u>
Prudhoe Bay	3.93
Kuparuk/Milne Pt.	4.08
Lisburne	3.86
Endicott	4.44

Tanker tariffs and refinery market delivery forecasts were based on data obtained from tax returns, industry figures, trade journal article, and studies done by government and private agencies. During the month of February 1987, roughly 60 percent of ANS production was reported as delivered to the West Coast and 40 percent to the U.S. Gulf and East Coasts, and Caribbean.

North Slope Gas Prices

North Slope wellhead gas prices, for the limited amount of gas produced and sold currently, vary considerably among the producers, ranging from \$.025/Mcf to \$3.43/Mcf. This variation reflects the imperfect market structure for these limited sales since the producers sell most of the gas to TAPS, which is owned by the producers, and the pipeline ownership shares differ from the resource ownership shares. Future prices will depend in large measure on the timing and cost of a gas transmission system built to access international markets, as in the case of the Trans Alaska Gas System (TAGS), or lower 48 markets, as in the case of the Alaska Natural Gas Transmission System (ANGTS). Given the projected low prices for oil, the continuing apparent excess supply of less costly sources of natural gas, and the high cost of either proposed

transmission system, it is assumed that there is only a 17 percent chance that any gas pipeline will be built and in operation by FY 2000. Furthermore, the high cost of either ANGTS or TAGS implies the possibility of a zero wellhead value during the early years of production. Price scenarios are used which range from \$0.00/Mcf to inflation adjusted prices based on the current price. The February 1987 reported price averaged \$0.488/Mcf. The average expected price assumed with a gas line in FY 2000 is \$2.90/Mcf.

North Slope Oil Production

Multiple base data well and production scenarios for oil and gas were developed from many sources, including information furnished by the producing companies, the Alaska Department of Natural Resources, the Alaska Oil and Gas Conservation Commission, oil industry trade journals and news releases. Specific annual production feasibility simulation production estimates for each of the Alaskan formations are depicted in Graphs 4, 5, and 6, on pages 15, 16, and 17 respectively. A full explanation of how these volumes were derived is available on request.

As shown on Graph 4, the majority of the simulated statewide production volume comes from the Prudhoe Bay reservoir throughout the 17-year period. Graph 4 also shows the total simulated statewide production, in millions of barrels per year, given the June 1987 forecast assumptions.

Table 9 presents the volumes associated with Graph 4; Table 10 shows the volumes for Graph 5; Table 11 goes with Graph 6. The total actual North Slope production for February 1987 averaged 1.822 million bbls/day.

The Endicott field is well on its way to becoming operational. The final sealift is enroute to the North Slope and is expected to arrive on August 1, 1987. If the weather cooperates, facility completion should allow for meeting the scheduled production startup of January 1988, or possibly as early as November or December, 1987. Initial production should rise to between 75,000 b/day and 100,000 b/day within a couple of months after startup. Peak production of about 100,000 b/day should be reached by July, 1988, remaining at that level for 4-5 years, declining rapidly thereafter.

Milne Point production is still on hold. Barring a rapid rise in oil prices, production is not expected to resume before June, 1988. Conoco and its partners have been having periodic meetings to discuss the fate of Milne Point, but have not made any firm decisions to abandon the field.

North Slope Gas Production

Given the continuing worldwide surplus of natural gas, the high cost of an Alaska gas transmission system, the failure of new markets for LNG to develop, and the long term outlook for low oil prices, this forecast assumes only a 17 percent chance that Alaska North Slope gas will be developed in this century.

Recent actions by the Federal and State governments have provided some hope to proponents of natural gas exports from the North Slope. In early June, 1987 the Federal Energy Regulatory Commission issued an order stating it would not

exercise jurisdiction over a proposed gas conditioning plant, a pipeline being proposed by Yukon Pacific, nor the gas itself. Meanwhile, the Alaska Legislature passed a bill giving the Commissioner of Natural Resources the authority to grant any pipeline project a conditional right-of-way across state land without first obtaining financing. These decisions are viewed as eliminating many of the obstacles for Yukon Pacific to gain financing for its project. Yukon Pacific is seeking foreign investors, and estimates construction costs at about \$8.5 billion. Annual sales to Japan, Taiwan, and Korea could total as much as 8 million tons of liquified natural gas per year.

Cook Inlet Oil Prices

Cook Inlet oil prices are assumed to change throughout the forecast in the same manner and at the same rate assumed for the West Coast ANS crude prices, as determined in the North Slope simulation model. The price is assumed to increase from \$12.89/bbl in FY 1987 to \$41.79/bbl in FY 2003. Prices for FY 1987 to FY 1991 are assumed to be: \$12.89/bbl, \$15.56/bbl, \$15.70/bbl, \$16.38/bbl, and \$17.48/bbl, respectively. The average February 1987 price was \$14.29/bbl.

Cook Inlet Gas Prices

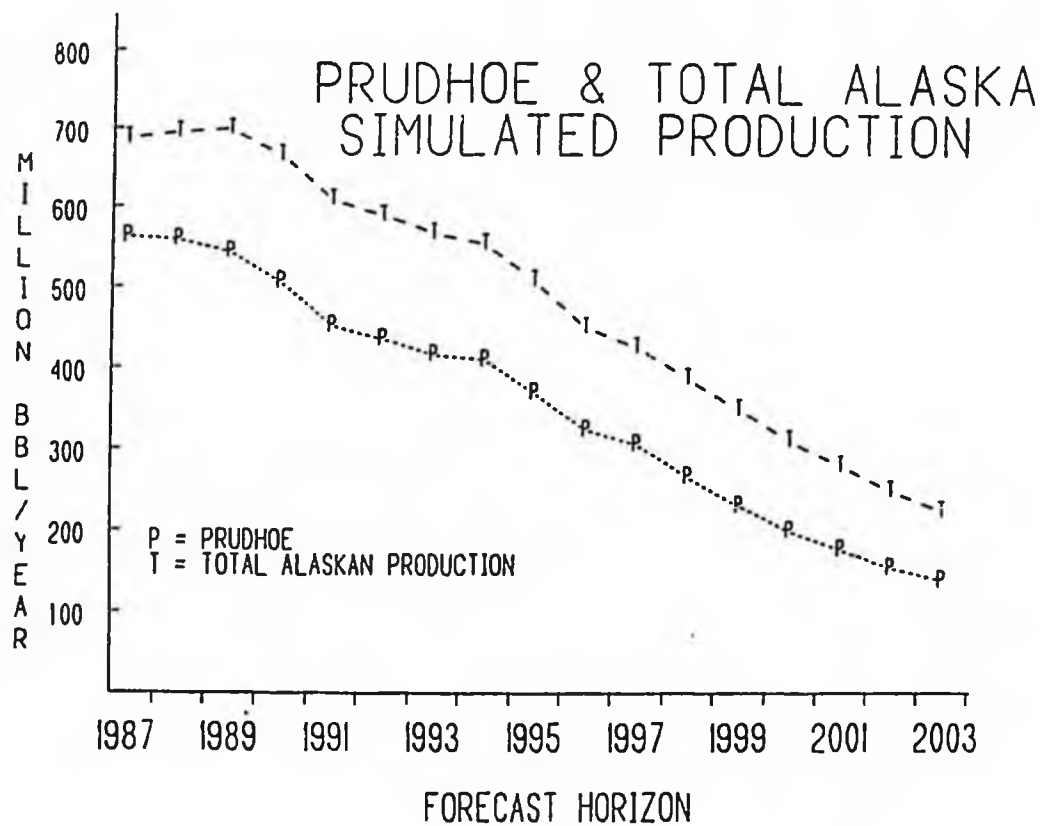
Gas prices were adjusted according to contract escalation agreements and assumed changes in the price of oil. The severance tax floor of \$.064/Mcf was assumed to remain constant. The actual weighted average price for February 1987 was \$0.95/Mcf.

Cook Inlet Oil Production

Oil and gas production analyses made by the Department of Revenue, the Department of Natural Resources, and the Division of Oil and Gas Conservation as well as trade journals and technical reports were used to generate the oil and gas production estimates for Cook Inlet. The simulated oil production profile is shown on Graph 6. The associated values are given on Table 11; oil production is non-risked for cost factors, unlike the values for ANS oil production. February 1987 oil production from Cook Inlet fields averaged 45,894 bbls/day.

Cook Inlet Gas Production

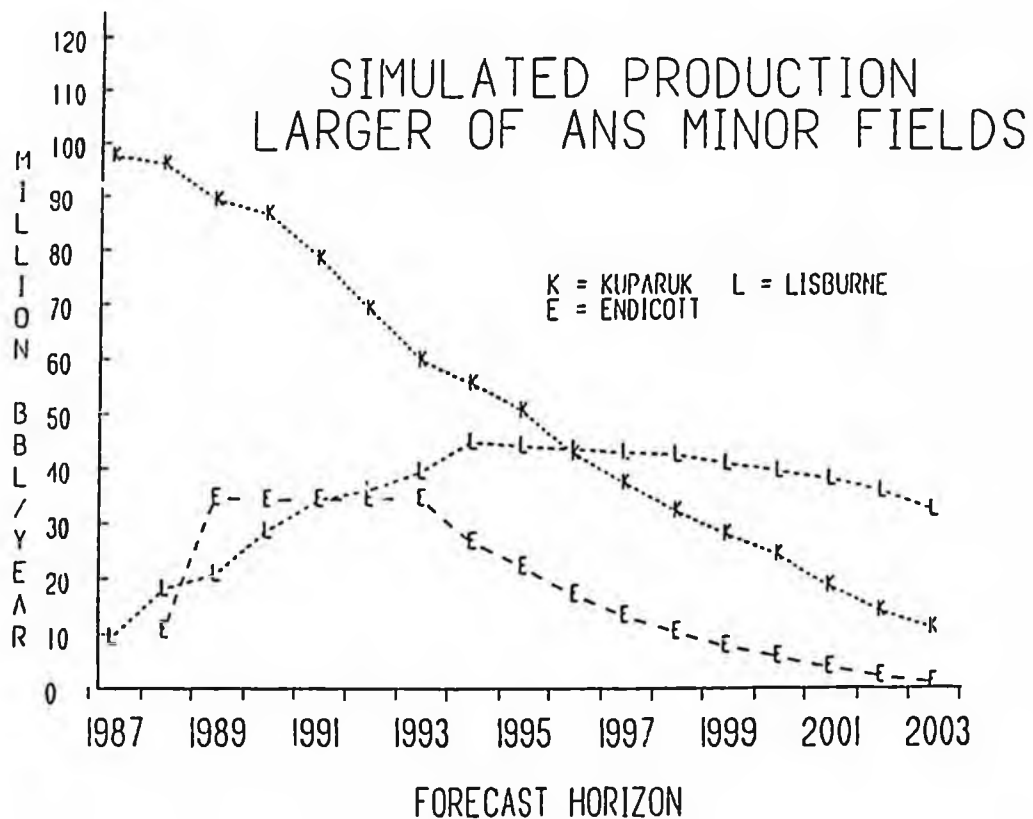
Gas production in Cook Inlet is anticipated to increase somewhat over the 17-year forecast period, from the FY 1987 level of .487 Bcf/day to a FY 2003 level of .756 Bcf/day. February 1987 production averaged .531 Bcf/day.



Graph 4

Table 9.
Simulated Production
(Million bbls/year)

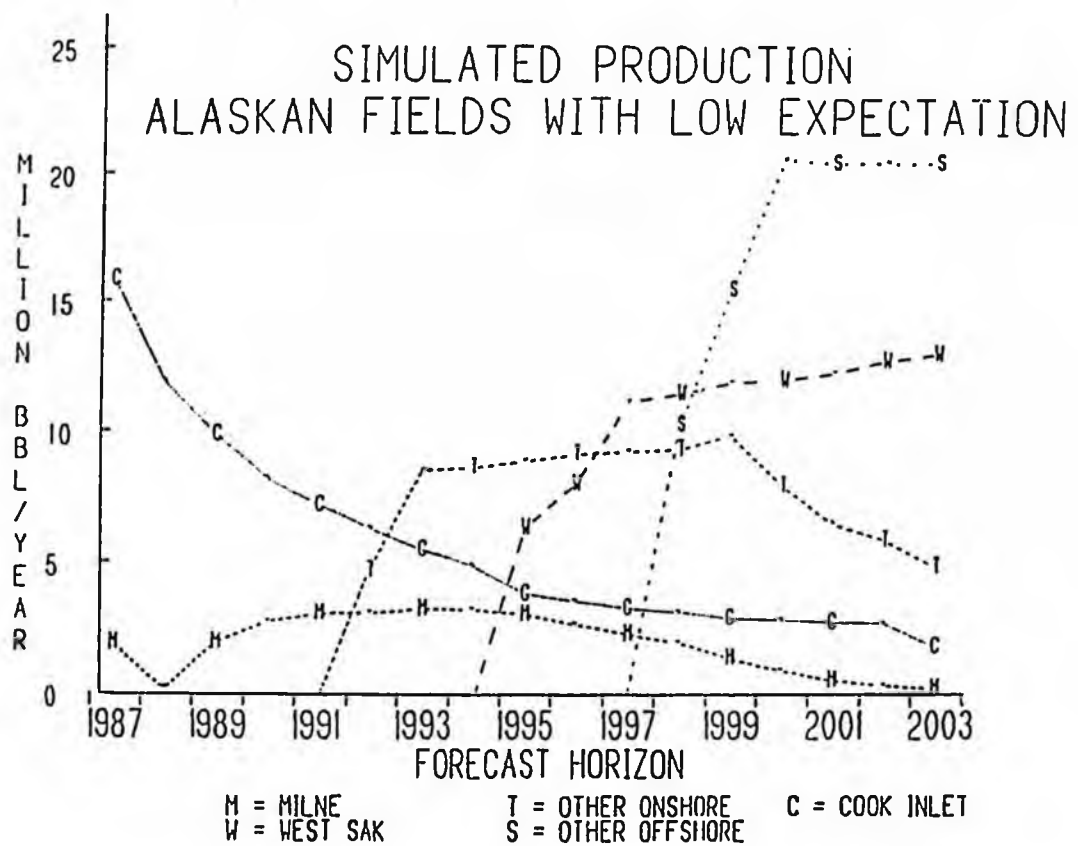
<u>Year</u>	<u>Prudhoe Bay</u>	<u>Total Alaska</u>
1987	561.72	686.56
1988	558.18	694.78
1989	541.74	697.79
1990	504.88	664.88
1991	450.43	607.06
1992	433.49	586.59
1993	414.26	564.52
1994	407.98	551.00
1995	368.21	506.36
1996	322.11	448.10
1997	304.72	423.94
1998	264.87	385.69
1999	229.55	347.61
2000	198.86	312.42
2001	175.77	278.59
2002	154.09	248.32
2003	138.56	223.20



Graph 5

Table 10.
Simulated Production
(Million bbls/year)

<u>Year</u>	<u>Kuparuk</u>	<u>West Sak</u>	<u>Lisburne</u>	<u>Endicott</u>
1987	97.51	0.19	9.42	0.00
1988	95.87	0.00	18.13	10.66
1989	88.94	0.00	20.79	34.53
1990	86.36	0.00	28.56	34.23
1991	78.03	0.00	34.15	34.26
1992	68.85	0.00	35.95	34.34
1993	59.55	0.00	39.23	34.37
1994	55.29	0.00	44.64	26.51
1995	50.35	6.26	43.96	22.01
1996	42.46	7.93	43.37	17.03
1997	37.30	11.10	42.85	13.29
1998	32.12	11.40	42.39	10.37
1999	28.00	11.83	40.91	7.87
2000	24.24	11.92	39.48	5.90
2001	18.64	12.19	38.05	3.94
2002	14.20	12.66	35.91	2.33
2003	11.07	12.93	32.36	1.15



Graph 6

Table 11.
Simulated Production
(million bbls/year)

<u>Year</u>	<u>Milne Pt.</u>	<u>Cook Inlet</u>	<u>Other Onshore</u>	<u>Other Offshore</u>
1987	1.89	15.83	0.00	0.00
1988	0.13	11.81	0.00	0.00
1989	1.93	9.86	0.00	0.00
1990	2.72	8.13	0.00	0.00
1991	3.03	7.16	0.00	0.00
1992	3.05	6.26	4.65	0.00
1993	3.20	5.45	8.46	0.00
1994	3.18	4.84	8.56	0.00
1995	2.99	3.77	8.81	0.00
1996	2.62	3.50	9.08	0.00
1997	2.25	3.24	9.19	0.00
1998	1.94	3.10	9.28	10.22
1999	1.35	2.88	9.82	15.40
2000	0.86	2.80	7.87	20.49
2001	0.49	2.72	6.44	20.35
2002	0.28	2.67	5.81	20.37
2003	0.17	1.79	4.80	20.37

Table 12 shows the average, or mean case, values for FY 1987 and the 30 percent cumulative distribution (risk adjusted) values for FY 1988-FY 2003 for severance and conservation taxes, royalties, and total petroleum revenues.

Table 12.
Petroleum Production Revenue Forecast
(Values in Millions of Dollars)

<u>Fiscal Year</u>	<u>Total Severance and Conservation Taxes</u>	<u>Total Royalties</u>	<u>Total Petroleum Revenues</u>
1987	625.11	587.79	1212.90
1988	638.57	747.04	1385.61
1989	631.11	757.11	1388.22
1990	632.16	787.11	1419.27
1991	552.64	717.37	1270.01
1992	584.35	765.36	1349.71
1993	599.49	797.74	1397.23
1994	596.53	803.37	1399.90
1995	565.24	774.56	1339.80
1996	514.22	740.14	1254.36
1997	476.93	710.00	1186.93
1998	444.80	685.36	1130.16
1999	406.16	656.66	1062.82
2000	375.78	635.01	1010.79
2001	354.82	605.52	960.34
2002	333.66	572.59	906.25
2003	323.16	559.24	882.40

The data presented in Table 12 have been broken down into their component parts in Table 13 on the following page. On Table 13, revenues are shown for oil and gas from the two major producing regions in the state: Cook Inlet and the North Slope. The values shown are the mean case values for FY 1987 and the risk adjusted values for FY 1988-FY 2003.

Table 13.
 Petroleum Production Revenue Forecast
 (Values in Millions of Dollars)

Year	OPT	GPT	North Slope		OCT	Total	OPT	GPT	Cook Inlet		OCT	Total	Statewide Total
			O ROY	G ROY					O ROY	G ROY			
1987	613.33	0.62	546.44	0.79	0.73	1161.92	0.79	9.65	23.96	16.62	0.02	51.03	1212.95
1988	623.47	0.50	692.49	0.57	0.73	1317.76	0.06	13.79	22.77	31.21	0.01	67.84	1385.61
1989	613.39	0.50	702.52	0.57	0.72	1317.69	0.01	16.49	18.69	35.33	0.01	70.53	1388.22
1990	613.14	0.50	733.04	0.57	0.69	1347.94	0.00	17.82	15.97	37.53	0.01	71.33	1419.27
1991	532.04	0.50	662.13	0.57	0.63	1195.87	0.00	19.47	14.92	39.75	0.01	74.14	1270.02
1992	562.18	0.50	708.71	0.57	0.60	1272.06	0.00	21.07	13.86	42.21	0.01	77.15	1349.71
1993	576.12	0.50	739.47	0.57	0.58	1317.24	0.00	22.28	12.82	44.88	0.01	79.99	1397.23
1994	572.07	0.50	743.16	0.57	0.55	1316.86	0.00	23.40	12.02	47.62	0.00	83.04	1399.90
1995	539.81	0.39	713.22	0.63	0.47	1254.52	0.00	24.57	10.16	50.55	0.00	85.28	1339.79
1996	485.01	0.39	663.47	0.63	0.41	1149.90	0.00	28.41	10.04	66.01	0.00	104.46	1254.36
1997	445.85	0.40	628.71	0.64	0.37	1075.97	0.00	30.31	9.89	70.76	0.00	110.96	1186.93
1998	409.46	0.40	594.81	0.63	0.33	1005.63	0.00	34.61	10.08	79.85	0.00	124.54	1130.17
1999	366.90	0.40	557.03	0.63	0.29	925.25	0.00	38.57	10.11	88.88	0.00	137.57	1062.82
2000	334.24	0.40	528.12	0.63	0.26	863.65	0.00	40.88	10.65	95.61	0.00	147.13	1010.79
2001	310.74	0.40	489.51	0.63	0.22	801.51	0.00	43.45	11.18	104.20	0.00	158.83	960.34
2002	287.31	0.40	446.99	0.63	0.19	738.52	0.00	45.76	9.82	112.15	0.00	167.73	906.25
2003	273.49	0.80	428.83	1.48	0.17	704.77	0.00	48.69	8.87	120.06	0.00	177.62	882.39

OPT = Oil Production Taxes
 GPT = Gas Production Taxes

O ROY = Oil Royalties
 G ROY = Gas Royalties

OCT = Oil Conservation Taxes

The following table compares the Total Petroleum Revenues from Table 14 of the March 1987 and from Table 12 of the June 1987 Petroleum Production Revenue Forecasts. Again, the mean values are given for FY 1987 and the risk adjusted values are given for FY 1988-FY 2003.

Table 14.
Comparison of March 1987 and June 1987
State of Alaska Petroleum Revenue Forecasts
for FY 1987 - FY 2003
(In Millions of Current Dollars)

<u>Fiscal Year</u>	<u>March 1987 Forecast</u>	<u>June 1986 Forecast</u>	<u>Difference</u>	<u>% Change</u>
1987	1162.46	1212.90	50.44	4.34
1988	1189.59	1385.61	196.02	16.48
1989	1319.14	1388.22	69.08	5.24
1990	1441.42	1419.27	-22.15	-1.54
1991	1330.42	1270.02	-60.40	-4.54
1992	1431.66	1349.71	-81.95	-5.72
1993	1503.92	1397.23	-106.69	-7.09
1994	1550.06	1399.90	-150.16	-9.69
1995	1512.66	1339.79	-172.87	-11.43
1996	1470.59	1254.36	-216.23	-14.70
1997	1455.73	1186.93	-268.80	-18.46
1998	1424.09	1130.17	-293.92	-20.64
1999	1366.82	1062.82	-304.00	-22.24
2000	1312.73	1010.79	-301.94	-23.00
2001	1269.40	960.34	-309.06	-24.35
2002	1223.23	906.25	-316.98	-25.91
2003	1198.75	882.39	-316.36	-26.39

State of Alaska Permanent Fund Contributions are depicted in Table 15. These contributions are based on the mean expected royalty values for FY 1987 and the risk adjusted royalty values for FY 1988-FY 2003. The forecasted contributions are exclusive of lease rentals, bonuses, royalty sale proceeds, reinvested earnings and legislative appropriations. The contribution rate is assumed to be 25 percent of royalties earned from mineral leases issued on or before December 1, 1979, such as Kuparuk, and 50 percent of royalties earned from mineral leases issued after December 1, 1979, such as Seal Island. The balance in the Permanent Fund as of June 30, 1986 was \$7866.35 million.

Table 15.

Projected State of Alaska Permanent Fund Contributions
for FY 1987-FY 2003
(In Millions of Current Dollars)

<u>Fiscal Year</u>	<u>Contribution Rates(%)</u>	<u>Royalty Values</u>	<u>Annual Contributions</u>	<u>Cumulative Contributions</u>
1987	.2500	587.79	146.97	8013.32
1988	.2505	747.04	187.10	8200.42
1989	.2515	757.11	190.40	8390.82
1990	.2515	787.11	197.99	8588.82
1991	.2517	717.37	180.56	8769.37
1992	.2537	765.36	194.20	8963.58
1993	.2556	797.74	203.88	9167.46
1994	.2553	803.37	205.12	9372.58
1995	.2573	774.56	199.26	9571.84
1996	.2585	740.14	191.33	9763.17
1997	.2598	710.00	184.43	9947.61
1998	.2673	685.36	183.19	10130.79
1999	.2732	656.66	179.43	10310.22
2000	.2782	635.01	176.67	10486.89
2001	.2802	605.52	169.64	10656.53
2002	.2833	572.59	162.20	10818.73
2003	.2859	559.24	159.87	10978.60

It should be stressed that the forecast of petroleum production revenues is done in nominal or current dollars, that is, future revenues are inflated. Often it is useful to examine future revenue flows in terms of constant dollars in order to provide an estimate of "purchasing" power in a present day context. The values for FY 1987-FY 2003 as given on Table 12 are deflated by the average expected rates of inflation to obtain Table 16. FY 1987 is equal to 1.00, therefore, FY 1987 values are the same as on Table 12.

Table 16.
Constant Dollar
Petroleum Production Revenue Forecast
(Values in Millions of Dollars)

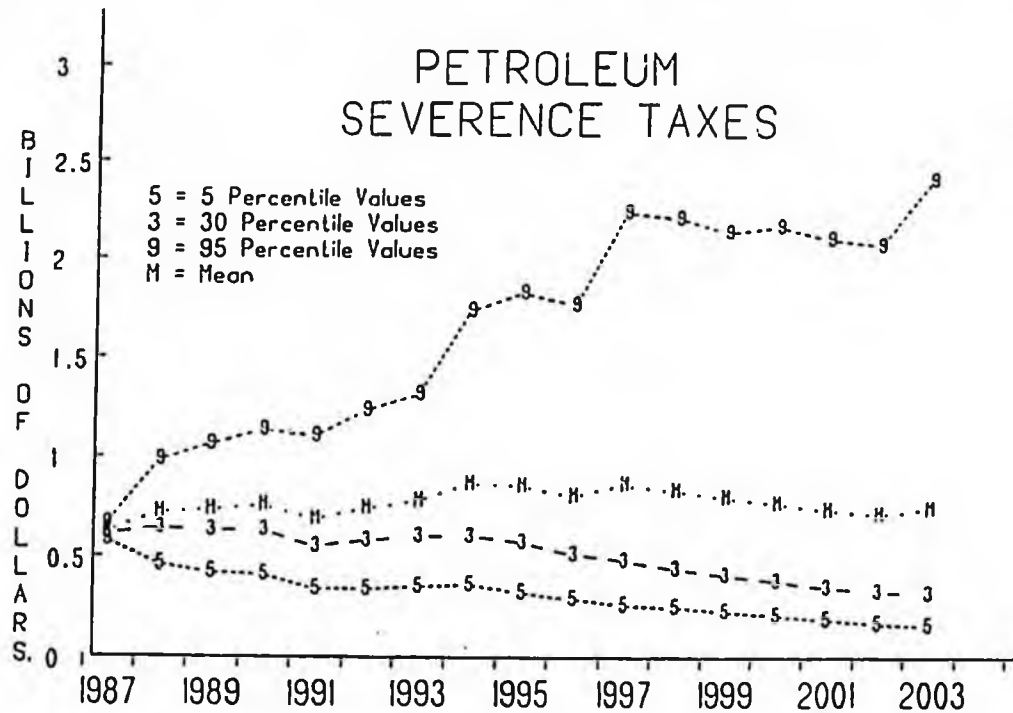
<u>Fiscal Year</u>	<u>Total Severance and Conservation Taxes</u>	<u>Total Royalties</u>	<u>Total Petroleum Revenues</u>
1987	625.11	587.79	1212.90
1988	605.80	708.70	1314.15
1989	567.94	681.32	1249.26
1990	534.81	665.90	1200.72
1991	439.54	570.56	1010.10
1992	436.93	572.27	1009.20
1993	421.41	560.76	982.17
1994	394.21	530.90	925.12
1995	350.24	479.95	830.19
1996	298.76	430.02	728.79
1997	259.82	386.79	646.61
1998	227.21	350.09	577.29
1999	194.53	314.51	509.04
2000	168.49	284.72	453.21
2001	148.94	254.17	403.10
2002	131.11	225.00	356.11
2003	118.88	205.72	324.60

The hedge achieved by use of the risk adjusted petroleum production revenue for the June 1987 forecast is illustrated in Table 17, which compares the risk adjusted revenue forecast to the average expected revenue forecast.

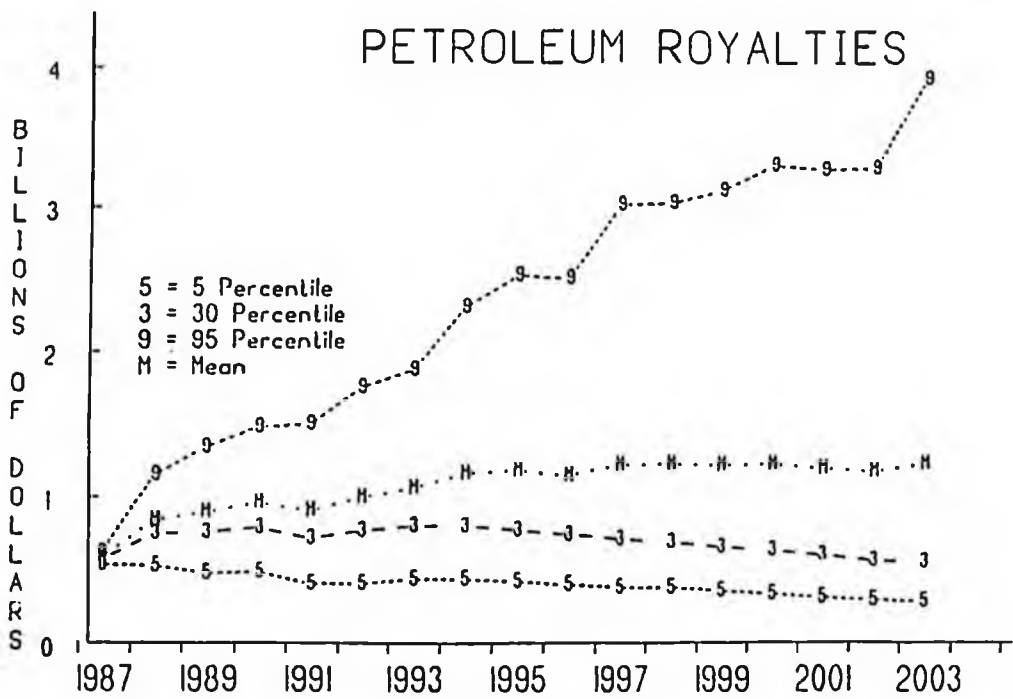
Table 17.
Comparison of Projected Average Expected and
Risk Adjusted Total Petroleum Production Revenues
(Millions of Dollars)

<u>Fiscal Year</u>	<u>Average Expected Revenue</u>	<u>Risk Adjusted Revenues</u>	<u>Difference</u>
1987	1212.90	1155.67	57.23
1988	1559.80	1385.61	174.19
1989	1629.89	1388.22	241.67
1990	1716.83	1419.27	297.56
1991	1594.86	1270.02	324.84
1992	1737.46	1349.71	387.75
1993	1836.30	1397.23	439.07
1994	2019.39	1399.90	619.49
1995	2030.33	1339.79	690.54
1996	1943.11	1254.36	688.75
1997	2076.31	1186.93	889.38
1998	2055.30	1130.17	925.13
1999	2016.03	1062.82	953.21
2000	1995.39	1010.79	984.60
2001	1937.65	960.34	977.31
2002	1894.28	906.25	988.03
2003	1972.79	882.39	1090.40

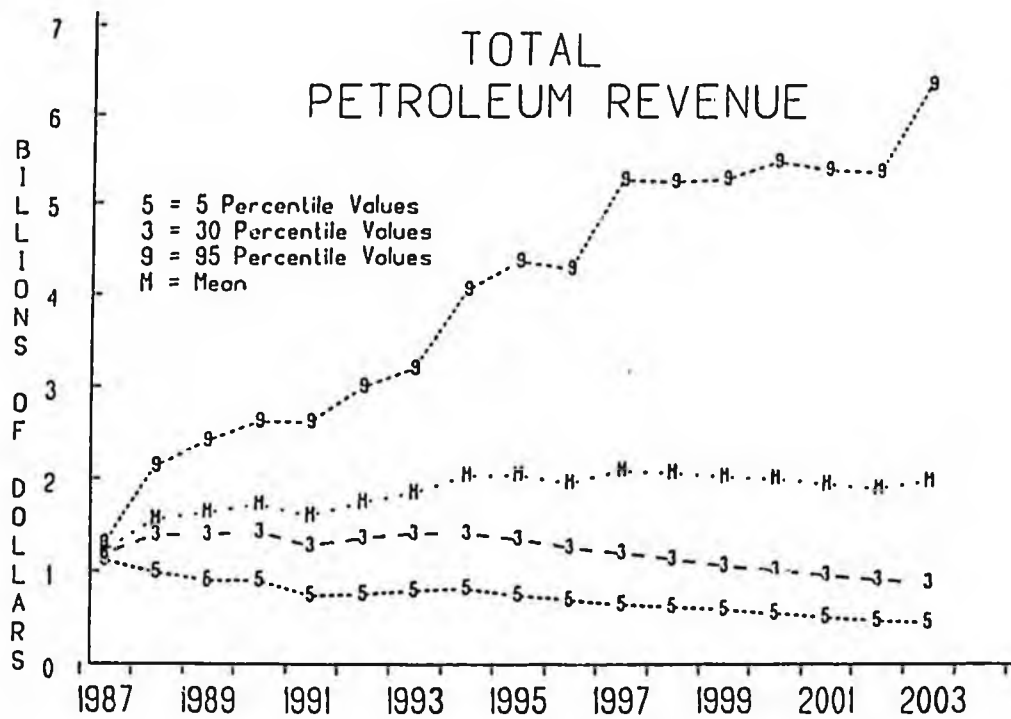
Based on the input assumptions made in the June 1987 forecast, Graphs 7, 8, and 9 show the expected ranges for the 95th percentile, mean, 30th percentile (risk adjusted), and 5th percentile cases for severance taxes, royalties, and total production revenues, respectively, which will accrue to the state between FY 1987-FY 2003. For graphic clarity, the 0 and 100th percentile cases are not shown on Graphs 7-12. Additionally, only selected values for the 5th through the 95th percentile are shown on Tables 18-20.



Graph 7.



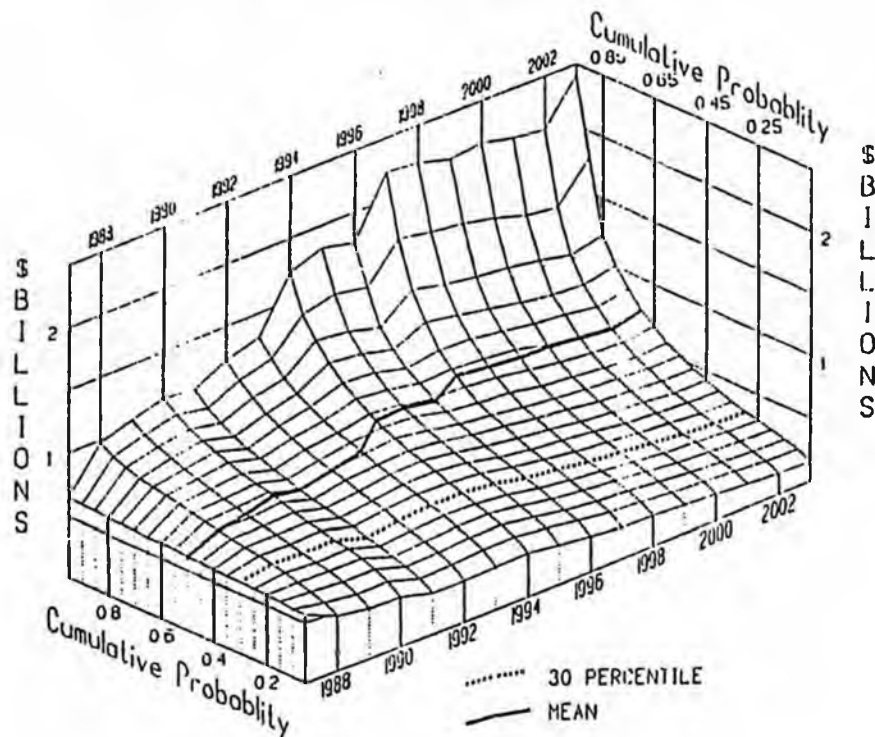
Graph 8.



Graph 9.

A shortcoming of single-line graphs such as Graphs 7, 8, and 9 is that it is impossible to "see" the real shape of the distribution of outcomes. This problem can be corrected by using a three-dimensional graphic which shows: (1) time, (2) billions of dollars, and (3) cumulative probability. Graph 10 represents exactly what was shown on Graph 7 but uses a three-dimensional perspective which shows the shape of the 5th through 95th percentile distribution of answers produced by the simulation model.

PETROLEUM SEVERANCE TAXES



Graph 10

The selected values shown in Table 18, on the following page, may be used to interpret Graph 10. By looking at Graph 10, an observer can see the shape of potential severance tax revenues extending 17 years into the future. By looking at Table 18, the observer can estimate severance tax values at particular points in time given different degrees of certainty. A couple of simple examples can illustrate how Graph 10 and Table 18 work together.

Given the assumptions used in this forecast:

1. Table 18 states that there is a 95 percent confidence that FY 1988 severance tax collections will be less than \$.98 billion. Graph 10 illustrates the same conclusion. Stated differently, both Table 18 and Graph 10 show that there is only a 5 percent probability that more than about \$.98 billion in severance taxes will be collected in FY 1988.

Table 18.

DISTRIBUTION FOR SEVERENCE TAXES
(CURRENT DOLLARS IN BILLIONS)

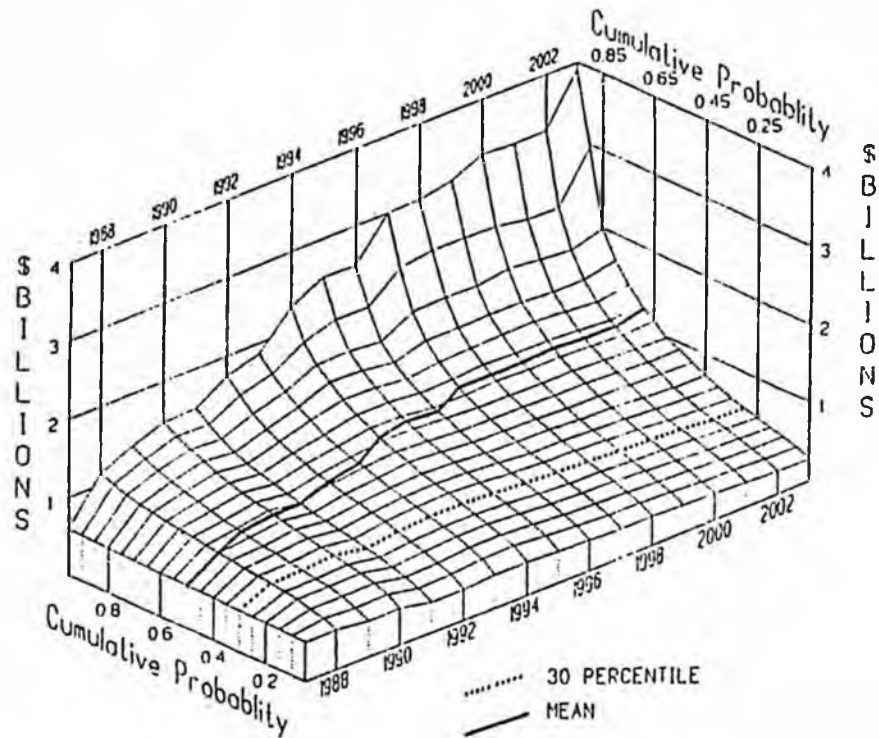
FISCAL YEAR	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
1987	0.58	0.59	0.60	0.61	0.62	0.62	0.63	0.64	0.65	0.66	0.66
1988	0.46	0.52	0.59	0.64	0.68	0.72	0.76	0.80	0.84	0.92	0.98
1989	0.42	0.49	0.58	0.63	0.68	0.72	0.77	0.83	0.90	0.99	1.06
1990	0.41	0.49	0.58	0.63	0.68	0.74	0.79	0.86	0.94	1.05	1.13
1991	0.34	0.41	0.49	0.55	0.61	0.66	0.72	0.79	0.87	1.00	1.10
1992	0.34	0.42	0.51	0.58	0.64	0.71	0.77	0.85	0.95	1.12	1.23
1993	0.35	0.44	0.53	0.60	0.67	0.73	0.81	0.89	1.01	1.19	1.31
1994	0.36	0.44	0.53	0.60	0.67	0.74	0.83	0.96	1.15	1.44	1.73
1995	0.32	0.41	0.49	0.57	0.64	0.71	0.81	0.93	1.12	1.50	1.82
1996	0.29	0.37	0.44	0.51	0.58	0.66	0.75	0.88	1.05	1.45	1.76
1997	0.26	0.33	0.41	0.48	0.54	0.63	0.72	0.89	1.17	1.74	2.23
1998	0.25	0.31	0.38	0.44	0.51	0.59	0.70	0.87	1.12	1.69	2.20
1999	0.23	0.28	0.35	0.41	0.48	0.56	0.65	0.84	1.07	1.66	2.13
2000	0.21	0.26	0.32	0.38	0.44	0.52	0.62	0.78	1.02	1.60	2.16
2001	0.19	0.24	0.30	0.35	0.42	0.50	0.59	0.75	0.98	1.52	2.10
2002	0.17	0.22	0.28	0.33	0.40	0.48	0.57	0.72	0.96	1.49	2.07
2003	0.16	0.21	0.27	0.32	0.39	0.47	0.58	0.75	1.01	1.79	2.41

2. Graph 10 indicates that there is a .05 cumulative probability that FY 1988 severance tax collections will be less than about \$0.50 billion. From Table 18 it can be seen that in FY 1988 there is a 5 percent confidence that the expected severance taxes will be less than or equal to \$0.46 billion. In this example, both the graph and the table are indicating there is only a 5 percent probability of collecting less than about \$.50 billion from severance taxes during FY 1988.

Graph 11 and Table 19 depict the distribution of expected royalty collections from FY 1987 to FY 2003. Graph 12 and Table 20 show the distribution of expected total petroleum revenues during the same forecast period.

The graphics and associated tables depict families of distribution functions, one function for each forecasting time period. Generally we do not expect the sum of the distributions to be equal to the distribution of the sums reported here. We refer the reader to technical note 1982 AN-1 for a discussion of the topic. Our technical notes are available upon request.

PETROLEUM ROYALTIES



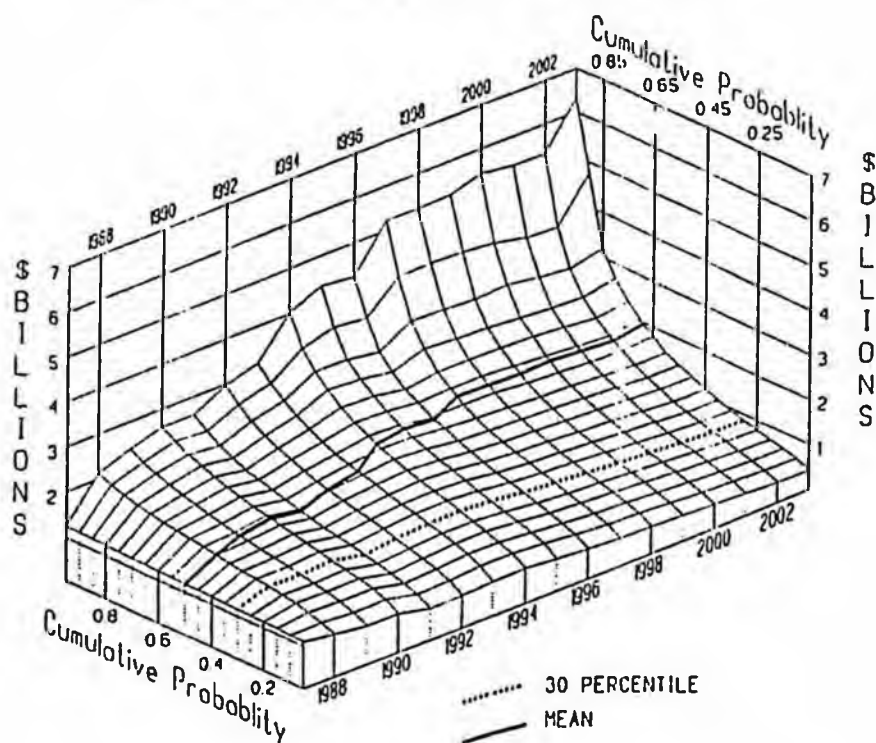
Graph 11.

Table 19.

DISTRIBUTION FOR ROYALTIES (CURRENT DOLLARS IN BILLIONS)

FISCAL YEAR	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
1987	0.54	0.55	0.56	0.57	0.58	0.59	0.59	0.60	0.61	0.62	0.62
1988	0.53	0.60	0.70	0.75	0.79	0.84	0.89	0.93	0.99	1.09	1.15
1989	0.48	0.58	0.70	0.76	0.82	0.88	0.94	1.02	1.12	1.25	1.34
1990	0.49	0.59	0.71	0.79	0.86	0.93	1.01	1.10	1.22	1.38	1.48
1991	0.41	0.51	0.63	0.72	0.80	0.87	0.95	1.05	1.17	1.37	1.50
1992	0.41	0.53	0.67	0.77	0.86	0.94	1.03	1.15	1.30	1.58	1.75
1993	0.44	0.57	0.70	0.80	0.89	0.98	1.09	1.22	1.42	1.69	1.87
1994	0.44	0.58	0.70	0.80	0.90	1.02	1.14	1.31	1.58	1.93	2.30
1995	0.42	0.54	0.67	0.77	0.88	0.99	1.13	1.31	1.56	2.06	2.52
1996	0.40	0.51	0.63	0.74	0.84	0.95	1.10	1.27	1.50	2.05	2.50
1997	0.38	0.48	0.61	0.71	0.80	0.93	1.08	1.28	1.62	2.39	3.01
1998	0.38	0.47	0.59	0.69	0.80	0.92	1.07	1.31	1.62	2.45	3.02
1999	0.36	0.45	0.56	0.66	0.77	0.90	1.06	1.29	1.63	2.45	3.11
2000	0.34	0.41	0.53	0.64	0.75	0.89	1.06	1.29	1.62	2.43	3.29
2001	0.32	0.40	0.50	0.61	0.72	0.87	1.03	1.26	1.59	2.36	3.26
2002	0.30	0.38	0.48	0.57	0.69	0.85	1.01	1.23	1.59	2.35	3.27
2003	0.29	0.36	0.46	0.56	0.67	0.83	0.99	1.26	1.67	2.97	3.91

TOTAL PETROLEUM REVENUES



Graph 12.

Table 20.

DISTRIBUTION OF TOTAL PETROLEUM REVENUES (CURRENT DOLLARS IN BILLIONS)

FISCAL YEAR	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
1987	1.12	1.14	1.16	1.18	1.20	1.21	1.23	1.24	1.26	1.28	1.29
1988	0.99	1.12	1.29	1.39	1.47	1.56	1.65	1.73	1.84	2.01	2.13
1989	0.90	1.07	1.27	1.39	1.49	1.60	1.71	1.85	2.02	2.24	2.40
1990	0.90	1.09	1.29	1.42	1.55	1.67	1.80	1.96	2.16	2.43	2.61
1991	0.74	0.92	1.12	1.27	1.41	1.54	1.67	1.84	2.05	2.37	2.60
1992	0.75	0.95	1.18	1.35	1.50	1.65	1.80	2.01	2.26	2.69	2.98
1993	0.79	1.01	1.23	1.40	1.56	1.72	1.90	2.12	2.43	2.88	3.18
1994	0.81	1.01	1.23	1.40	1.57	1.76	1.97	2.27	2.73	3.37	4.03
1995	0.74	0.95	1.16	1.34	1.52	1.70	1.94	2.24	2.68	3.56	4.34
1996	0.69	0.87	1.07	1.25	1.42	1.61	1.85	2.15	2.56	3.49	4.26
1997	0.64	0.81	1.02	1.19	1.35	1.55	1.80	2.18	2.80	4.12	5.24
1998	0.62	0.78	0.97	1.13	1.31	1.51	1.76	2.18	2.73	4.14	5.22
1999	0.59	0.73	0.91	1.06	1.25	1.46	1.71	2.13	2.70	4.11	5.25
2000	0.55	0.67	0.86	1.01	1.19	1.42	1.68	2.07	2.64	4.03	5.45
2001	0.51	0.64	0.80	0.96	1.14	1.37	1.62	2.01	2.58	3.87	5.36
2002	0.47	0.60	0.76	0.91	1.08	1.32	1.58	1.95	2.54	3.83	5.34
2003	0.45	0.57	0.73	0.88	1.06	1.31	1.57	2.02	2.68	4.76	6.33

Table 21, following, shows cash flows on a monthly basis. The mean values are given for FY 1987 and the risk adjusted values are given for FY 1988.

Table 21.
 Petroleum Production Revenue Forecast
 Monthly Cash Flow FY1987-FY1988
 (Values in Millions of Dollars)

Month	OPT		North Slope		OCT	Total	OPT		Cook Inlet		OCT	Total	Statewide Total
	OPT	GPT	O ROY	G ROY			OPT	GPT	O ROY	G ROY			
JUL	36.58	0.12	22.47	0.13	0.06	59.36	0.06	0.71	1.78	0.92	0.00	3.46	62.81
AUG	37.42	0.05	19.45	0.08	0.06	57.06	0.04	0.55	1.34	1.02	0.00	2.95	60.01
SEP	35.86	0.04	22.95	0.05	0.06	58.95	0.06	0.70	1.70	1.12	0.00	3.58	62.53
OCT	37.03	0.04	36.37	0.05	0.06	73.55	0.08	0.80	2.00	1.32	0.00	4.20	77.75
NOV	43.03	0.05	39.58	0.07	0.06	82.79	0.09	0.82	1.99	1.34	0.00	4.23	87.02
DEC	39.03	0.04	35.58	0.06	0.06	74.78	0.10	0.92	1.98	1.44	0.00	4.44	79.21
JAN	44.44	0.05	42.00	0.07	0.06	86.62	0.10	0.98	1.98	1.53	0.00	4.60	91.22
FEB	63.75	0.06	61.53	0.07	0.07	125.47	0.12	0.83	2.07	1.30	0.00	4.33	129.80
MAR	59.66	0.04	57.50	0.05	0.06	117.30	0.11	0.83	2.47	1.50	0.00	4.92	122.22
APR	72.73	0.04	69.96	0.05	0.06	142.85	0.02	0.83	2.17	1.67	0.00	4.68	147.53
MAY	69.55	0.04	66.89	0.05	0.06	136.59	0.01	0.85	2.26	1.74	0.00	4.87	141.46
JUN	<u>74.26</u>	<u>0.05</u>	<u>72.17</u>	<u>0.05</u>	<u>0.06</u>	<u>146.60</u>	<u>0.01</u>	<u>0.83</u>	<u>2.23</u>	<u>1.72</u>	<u>0.00</u>	<u>4.78</u>	<u>151.38</u>
FY87	613.33	0.62	546.44	0.79	0.73	1161.92	0.79	9.65	23.96	16.61	0.02	51.04	1212.95
JUL	60.92	0.04	58.01	0.05	0.06	119.07	0.01	0.85	2.27	1.77	0.00	4.91	123.98
AUG	54.02	0.04	61.20	0.05	0.06	115.38	0.00	1.00	1.98	2.46	0.00	5.44	120.82
SEP	54.02	0.04	61.20	0.05	0.06	115.37	0.00	1.00	1.92	2.44	0.00	5.37	120.74
OCT	49.51	0.04	55.54	0.05	0.06	105.19	0.00	1.08	1.95	2.57	0.00	5.60	110.79
NOV	51.19	0.04	57.43	0.05	0.06	108.77	0.00	1.13	1.87	2.61	0.00	5.61	114.38
DEC	49.53	0.04	55.57	0.05	0.06	105.26	0.00	1.27	1.92	2.84	0.00	6.03	111.29
JAN	50.36	0.04	56.62	0.05	0.06	107.13	0.00	1.27	1.91	2.85	0.00	6.04	113.17
FEB	53.62	0.04	60.50	0.05	0.06	114.28	0.00	1.15	1.72	2.57	0.00	5.44	118.72
MAR	48.36	0.04	54.56	0.04	0.06	103.06	0.00	1.28	1.90	2.85	0.00	6.03	109.09
APR	50.80	0.04	57.08	0.05	0.06	108.03	0.00	1.24	1.77	2.72	0.00	5.74	113.78
MAY	49.11	0.04	55.20	0.05	0.06	104.45	0.00	1.28	1.82	2.81	0.00	5.91	110.37
JUN	<u>50.66</u>	<u>0.04</u>	<u>56.91</u>	<u>0.05</u>	<u>0.06</u>	<u>101.72</u>	<u>0.00</u>	<u>1.24</u>	<u>1.75</u>	<u>2.72</u>	<u>0.00</u>	<u>5.72</u>	<u>113.44</u>
FY88	622.09	0.50	689.82	0.57	0.73	1313.71	0.07	13.79	22.77	31.21	0.01	67.85	1381.56

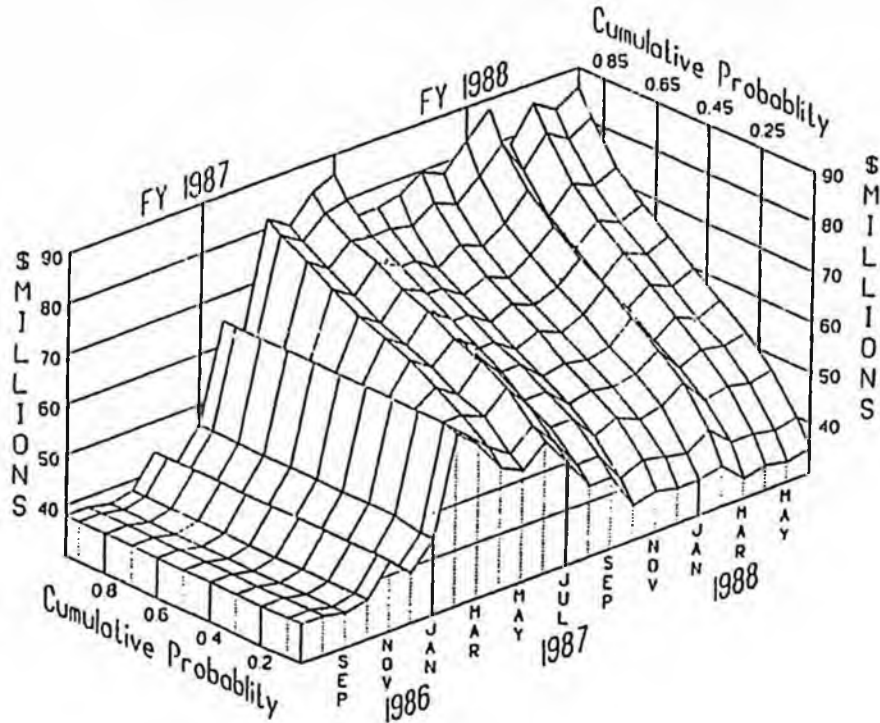
OPT = Oil Production Taxes
 GPT = Gas Production Taxes

O ROY = Oil Royalties
 G Roy = Gas Royalties

OCT = Oil Conservation Taxes

Graph 13 depicts the distribution of expected monthly severance tax revenue collections. Variations are primarily due to differing number of days in each of the production months represented. Table 22 is associated with Graph 13.

PETROLEUM SEVERANCE TAXES



Graph 13.

Table 22.

DISTRIBUTION FOR SEVERANCE TAXES (CURRENT DOLLARS IN MILLIONS)

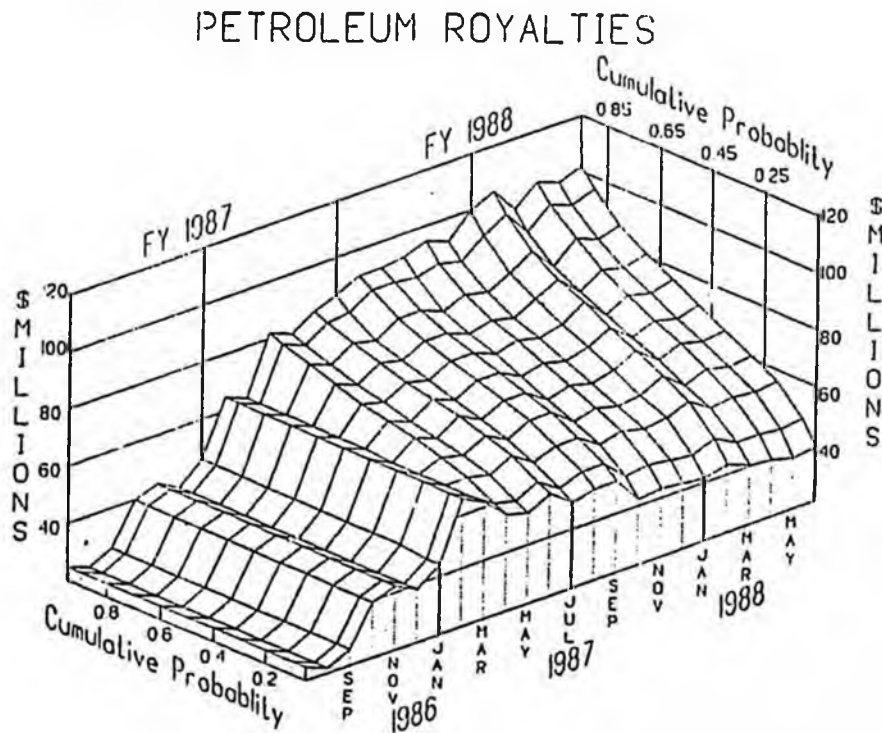
FY 1987	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	38	38	38	38	38	38	38	38	38	38	38
AUG	38	38	38	38	38	38	38	38	38	38	38
SEP	37	37	37	37	37	37	37	37	37	37	37
OCT	38	38	38	38	38	38	38	38	38	38	38
NOV	44	44	44	44	44	44	44	44	44	44	44
DEC	40	40	40	40	40	40	40	40	40	40	40
JAN	45	45	46	46	46	46	46	46	46	46	46
FEB	64	65	65	65	65	65	65	65	65	65	65
MAR	60	61	61	61	61	61	61	61	61	61	61
APR	59	61	66	68	71	73	76	78	81	84	86
MAY	56	59	63	66	68	70	73	75	78	81	83
JUN	60	63	67	70	73	75	77	80	83	86	88

Table 22. (cont.)

DISTRIBUTION FOR SEVERENCE TAXES
(CURRENT DOLLARS IN MILLIONS)

FY 1988	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	50	53	58	62	65	68	71	74	77	82	86
AUG	44	47	52	55	58	60	63	66	69	73	76
SEP	44	47	52	55	58	60	63	66	69	73	76
OCT	37	41	47	51	54	57	60	63	66	72	77
NOV	38	43	49	52	55	59	62	65	69	75	80
DEC	37	42	47	51	54	57	60	63	67	73	78
JAN	37	41	48	52	55	59	62	66	70	77	83
FEB	38	44	51	55	59	63	66	70	75	82	88
MAR	34	40	46	50	53	57	60	64	68	75	79
APR	35	40	47	52	56	60	64	68	73	81	86
MAY	34	39	46	51	54	58	62	66	71	78	83
JUN	35	40	47	52	56	60	64	68	73	81	86

Graph 14 shows the distribution of expected monthly petroleum royalty collections and is associated with Table 23, on the following page.



Graph 14.

Table 23.

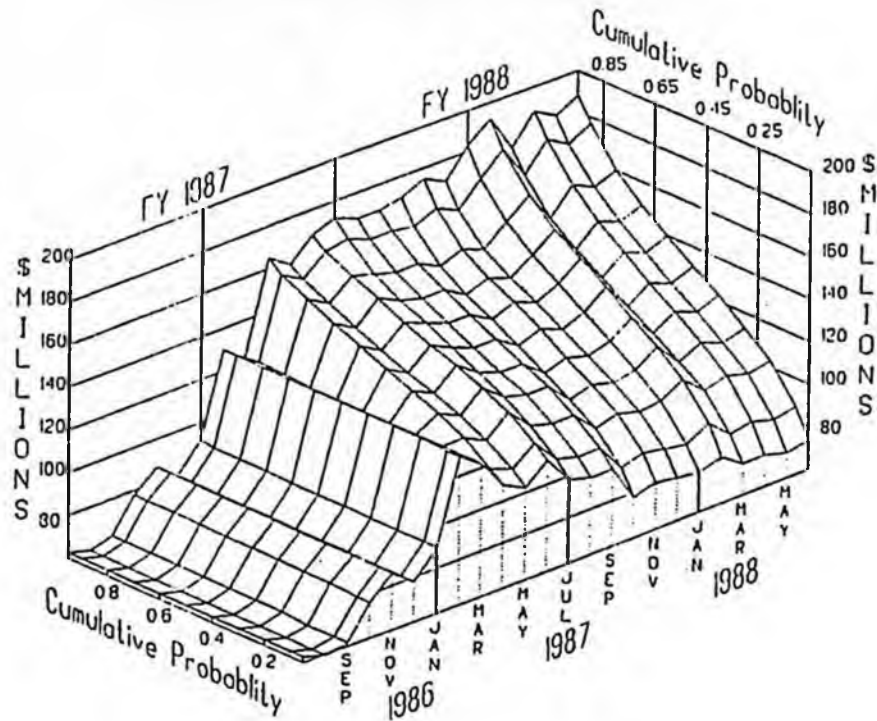
DISTRIBUTION FOR ROYALTIES
(CURRENT DOLLARS IN MILLIONS)

FY 1987	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	25	25	25	25	25	25	25	25	25	25	25
AUG	22	22	22	22	22	22	22	22	22	22	22
SEP	26	26	26	26	26	26	26	26	26	26	26
OCT	40	40	40	40	40	40	40	40	40	40	40
NOV	43	43	43	43	43	43	43	43	43	43	43
DEC	39	39	39	39	39	39	39	39	39	39	39
JAN	45	45	46	46	46	46	46	46	46	46	46
FEB	65	65	65	65	65	65	65	65	65	65	65
MAR	61	61	61	61	61	62	62	62	62	62	62
APR	58	61	65	68	71	73	76	78	81	84	86
MAY	56	59	63	66	68	71	73	75	78	81	83
JUN	60	63	67	70	73	75	78	80	83	86	88

FY 1988	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	50	53	58	62	65	68	71	74	77	83	87
AUG	52	56	61	66	69	72	75	78	82	88	91
SEP	52	56	61	66	69	72	75	78	82	88	91
OCT	43	49	56	60	64	68	72	75	79	87	92
NOV	44	50	58	62	66	70	74	77	82	89	95
DEC	43	49	56	60	64	68	72	75	80	87	92
JAN	42	48	57	61	66	70	74	79	84	93	100
FEB	44	51	60	65	70	74	79	83	89	98	104
MAR	41	47	55	59	64	68	72	76	81	89	95
APR	40	47	56	62	67	71	76	81	88	96	102
MAY	38	46	55	60	65	69	74	79	85	93	99
JUN	39	47	56	61	66	71	76	81	87	96	102

Graph 15, on the following page, depicts the 5th through 95th percentile distribution of expected monthly total petroleum revenues. Table 24 gives the values for Graph 15. From Table 24, given the assumptions of this forecast, the expected distribution for June 1988 (FY 1988) is between \$74 and \$188 million, as a consequence of May 1988 production. This range is also illustrated by Graph 15. Furthermore, from Table 18 it can be seen that there is a 30 percent confidence that total petroleum revenues will be \$113.44 million or less. Table 24 shows that there is a 30 percent confidence that collections will be less than \$113 million and 70 percent confidence collections will be greater than \$113 million.

TOTAL PETROLEUM REVENUES



Graph 15.

Table 24.

DISTRIBUTION OF TOTAL PETROLEUM REVENUES (CURRENT DOLLARS IN MILLIONS)

FY 1987	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	63	63	63	63	63	63	63	63	63	63	63
AUG	60	60	60	60	60	60	60	60	60	60	60
SEP	62	62	62	63	63	63	63	63	63	63	63
OCT	77	77	78	78	78	78	78	78	78	78	78
NOV	87	87	87	87	87	87	87	87	87	87	87
DEC	79	79	79	79	79	79	79	79	79	79	80
JAN	91	91	91	91	91	91	91	91	91	91	92
FEB	129	129	130	130	130	130	130	130	130	130	130
MAR	122	122	122	122	122	122	122	122	123	123	123
APR	117	122	131	137	142	146	151	156	163	169	173
MAY	113	117	126	132	136	141	145	150	156	162	166
JUN	121	126	135	140	145	150	155	160	166	172	176

FY 1988	5 %	10 %	20 %	30 %	40 %	50 %	60 %	70 %	80 %	90 %	95 %
JUL	99	106	116	124	130	136	142	147	154	165	172
AUG	96	103	113	121	126	132	138	144	151	161	168
SEP	96	103	113	121	126	132	138	144	151	161	168
OCT	79	90	103	111	118	125	132	138	146	159	170
NOV	82	93	106	114	121	129	136	142	150	164	175
DEC	80	91	103	111	118	125	132	138	146	159	170
JAN	79	89	104	113	121	129	137	145	155	170	183
FEB	82	95	110	120	128	137	145	153	164	180	192
MAR	75	86	101	109	117	124	132	140	149	164	174
APR	75	88	104	114	123	131	140	149	161	177	188
MAY	72	85	101	110	119	127	136	145	156	171	182
JUN	74	87	103	113	123	131	140	149	160	177	188

Forecast Track Record

The petroleum revenue forecasting model (PETREV) was constructed to allow for a wide range of probable events. However, the distribution of potential revenue outcomes shifts through time as events or anticipated events change. Accordingly, the statistical mean may vary over time. It is possible, however, for the range of potential revenues to change through time to a lesser or greater extent than the statistical mean.

Table 25 illustrates how the range and mean for FY 1987 total revenue has varied since the March 1986 forecast. It can be seen that the forecast range has changed from \$3670 million to \$250 million, a decline of \$3420 million. At the same time, the mean revenues being forecast decreased by \$696 million, from \$1909 million in March 1986 to \$1213 million in June 1987. This statistical narrowing of the range of outcomes reflects the fact that information becomes increasingly more reliable as the time periods being analyzed draw nearer.

Table 25.
A Comparison of Prior FY 1987
Petroleum Production Revenue Forecasts
(In Millions of Dollars)

Percentage Less Than Cumulative Frequency Distribution	3/1986 Forecast	6/1986 Forecast	9/1986 Forecast	12/1985 Forecast	3/1987 Forecast	6/1987 Forecast
0%	500	310	120	570	950	1070
10%	930	450	700	700	1030	1110
20%	1310	570	810	780	1080	1140
30%	1560	640	890	830	1110	1160
40%	1800	710	950	880	1140	1170
50%	2000	770	1020	930	1170	1180
60%	2140	830	1090	980	1190	1200
70%	2280	900	1170	1030	1220	1210
80%	2460	1030	1280	1100	1250	1230
90%	2690	1300	1440	1190	1290	1250
100%	4170	2030	2290	1830	1450	1320
<hr/>						
RANGE	3670	1720	2170	1260	500	250
MEAN	1909	816	1043	942	1162	1213

PETREV Accuracy

By inserting actual data from producer tax returns, royalty reports, and other sources into the PETREV model assumptions, it is possible to make a "backcast" of revenues received during the current fiscal year. A comparison of the PETREV model results with actual revenues received then provides an indication of the accuracy of the PETREV model as a forecast tool. Such a comparison is given in Table 26.

Table 26.
Actual and Estimated FY 1987 Cash Flows
(In Millions of Current Dollars)

<u>Month</u>	<u>Severance and Conservation Taxes</u>		<u>Royalties</u>	
	<u>Actual</u>	<u>Estimated</u>	<u>Actual</u>	<u>Estimated</u>
July 1986	37.58.	37.53	25.22	25.30
August 1986	38.43	38.12	25.45	21.89
September 1986	38.32	36.72	16.74	25.82
October 1986	35.45	38.01	30.58	39.74
November 1986	41.97	44.05	43.44	42.98
December 1986	40.20	40.15	37.22	39.06
January 1987	45.37	45.63	40.57	45.58
February 1987	68.92	64.83	63.37	64.97
March 1987	60.50	60.70	66.74	61.52
April 1987				
May 1987				
June 1987				
	<u>406.74</u>	<u>405.74</u>	<u>349.53</u>	<u>366.86</u>

PETREV modeling estimates of FY 1987 revenues for past months compare favorably with collections actually received. PETREV estimated severance and conservation tax collections through March 1987 to be \$405.74 million, actual collections amounted to \$406.74 million. This represents an under-estimate of \$1.00 million or 0.246 percent. PETREV projected royalty receipts through March 1987 to be \$366.86 million while actual collections amounted to \$349.53 million. This is an over-estimate of \$17.33 million or 4.724 percent. The majority of this difference occurs from August through October 1986 and in March 1987, when the Department of Natural Resources made large adjustments to the actual royalty collections. Such adjustments occur on occasion, but are not within the scope of PETREV's modelling process to predict. In total, PETREV estimated all petroleum production revenues through March 1987 to be \$772.60 million while actual collections amounted to \$756.27, an over-estimate of \$16.33 million or 2.114 percent. Again, the major difference results from the royalty adjustments discussed above.

Presented in Appendix A are actual and forecast prices of ANS crude oil and OPEC Marker crude oil sold in the U.S., on an annual and monthly basis. The OPEC Marker used in this forecast is Saudi Medium. Appendix B is a summary of Alaska's expected revenues from all sources for FY 1986 - FY 1989.

APPENDIX A

Prices in Table 1A are associated with Graph 1, page 10. Prices in Table 2A are associated with Graph 2, page 11. They are based on the State of Alaska's fiscal year, which runs from July 1 - June 30. For example, FY 1987 in Table 2A is based on July 1986 through June 1987 prices, which may be found in Table 1A. The OPEC Marker used in this forecast is Saudi Medium.

Table 1A.
Actual and Expected Crude Oil Prices
For Alaska North Slope Crude and OPEC Marker
Monthly Data (\$/bbl)

<u>Mo/Yr</u>	<u>ANS West</u>	<u>ANS Gulf</u>	<u>Saudi Gulf</u>	<u>Mo/Yr</u>	<u>ANS West</u>	<u>ANS Gulf</u>	<u>Saudi Gulf</u>
Jul 82	28.30	30.28	33.68	Jul 85	24.04	26.93	26.84
Aug	28.12	30.31	34.00	Aug	24.02	26.92	27.01
Sep	28.00	30.62	32.76	Sep	24.15	26.94	27.60
Oct	27.67	30.55	30.81	Oct	24.20	26.91	28.25
Nov	28.02	30.06	31.12	Nov	24.26	26.90	28.43
Dec	27.35	29.36	29.94	Dec	24.25	26.50	26.89
Jan 83	26.87	28.29	28.45	Jan 86	23.28	23.21	24.35
Feb	25.59	27.50	28.90	Feb	17.73	18.32	20.14
Mar	25.16	27.16	28.90	Mar	13.65	15.07	18.28
Apr	25.21	27.36	29.21	Apr	11.31	13.27	16.04
May	25.32	27.36	29.10	May	10.73	12.54	16.29
Jun	25.34	27.42	29.25	Jun	10.62	11.81	14.69
Jul	25.32	27.51	29.25	Jul	9.27	10.39	12.17
Aug	25.45	27.86	29.25	Aug	9.62	11.18	14.55
Sep	25.65	28.04	29.11	Sep	11.63	12.89	16.60
Oct	25.71	27.95	29.07	Oct	11.90	12.88	15.26
Nov	25.73	27.93	29.19	Nov	11.78	12.88	14.85
Dec	25.73	27.89	29.16	Dec	12.57	14.34	15.38
Jan 84	26.05	28.06	29.03	Jan 87	14.03	15.43	18.61
Feb	25.57	27.87	28.99	Feb	15.02	16.23	17.13
Mar	25.59	27.91	28.90	Mar	15.28	16.58	18.53
Apr	25.49	27.93	29.08	Apr	15.51	16.57	18.54
May	25.64	27.95	27.15	May	15.87	16.93	18.89
Jun	25.70	28.04	27.28	Jun	15.84	16.90	18.86
Jul	25.81	27.95	27.66	Jul	15.02	15.41	18.86
Aug	25.66	27.92	27.71	Aug	15.02	15.19	18.86
Sep	25.75	27.90	28.06	Sep	14.76	15.09	18.60
Oct	25.36	27.92	27.25	Oct	14.76	14.55	18.60
Nov	25.73	28.01	27.13	Nov	14.76	14.54	18.60
Dec	25.23	27.38	26.85	Dec	14.83	14.53	18.66
Jan 85	24.72	27.00	25.61	Jan 88	14.83	15.47	18.66
Feb	24.29	26.98	25.26	Feb	14.82	15.46	18.66
Mar	24.31	26.97	26.72	Mar	14.38	15.45	18.22
Apr	24.27	26.97	26.95	Apr	14.38	15.41	18.22
May	24.10	26.94	26.70	May	14.37	15.40	18.21
Jun	24.15	26.94	25.70	Jun	14.51	15.39	18.36

Table 2.
Actual and Expected Crude Oil Prices
For Alaska North Slope and OPEC Marker
Annual Data (\$/bbl)

<u>Year</u>	<u>ANS West</u>	<u>ANS Gulf</u>	<u>Saudi Gulf</u>
1978	12.30	14.60	13.46
1979	13.70	15.50	14.41
1980	26.50	27.68	24.75
1981	31.43	33.67	29.45
1982	29.50	31.07	32.99
1983	26.75	28.86	30.51
1984	25.64	27.91	28.79
1985	24.95	27.40	26.80
1986	19.35	21.28	22.90
1987	13.19	14.43	16.61
1988	14.70	15.89	18.54
1989	14.83	16.04	18.69
1990	15.48	16.74	19.45
1991	16.51	17.88	20.77
1992	17.67	19.12	22.18
1993	18.91	20.46	23.71
1994	20.14	21.79	25.23
1995	21.46	23.26	26.94
1996	22.92	24.85	28.77
1997	24.47	26.56	30.74
1998	26.19	28.39	32.85
1999	28.37	30.69	35.45
2000	30.78	33.26	38.34
2001	33.43	36.05	41.49
2002	36.35	39.12	44.93
2003	39.74	42.47	48.68

Revenue Summary

In Thousands of Current Dollars

	FY 1987 Estimate <u>June</u>	FY 1988 Estimate <u>June</u>	FY 1989 Estimate <u>June</u>
Total General Fund Unrestricted Revenues	<u>1,741,300</u>	<u>1,716,100</u>	<u>1,672,100</u>
Total General Fund Restricted Revenues	<u>406,700</u>	<u>406,700</u>	<u>408,600</u>
Total General Fund Revenues	<u>2,148,000</u>	<u>2,122,800</u>	<u>2,080,700</u>
Alaska Permanent Fund	<u>1,419,900</u>	<u>193,400</u>	<u>197,200</u>

Key Assumptions for June 1987
Petroleum Revenue Projections
For FY 1987 - FY 1989

Fiscal Year	(\$/bbl) Mean Wellhead Value	(\$/bbl) 30% Wellhead Value	Mean TAPS Throughput (MMbbs/day)	Mean Rate Inflation %
1987	\$7.22	\$7.05	1.84	3.59
1988	\$9.90	\$8.81	1.87	5.41
1989	\$10.44	\$8.84	1.89	5.42

Sales Price for
Alaska North Slope Crude Oil at Los Angeles, California

	<u>Weighted Average</u>	<u>30% Case</u>	
FY 87	\$13.16	\$12.99	per barrel
FY 88	\$14.70	\$13.61	per barrel
FY 89	\$14.83	\$13.23	per barrel

Sales Price for
Alaska North Slope Crude Oil at Houston, Texas

	<u>Weighted Average</u>	<u>30% Case</u>	
FY 87	\$14.38	\$14.21	per barrel
FY 88	\$15.89	\$14.80	per barrel
FY 89	\$16.04	\$14.44	per barrel

Weighted Average TAPS Tariff

FY 87	\$4.25	per barrel
FY 88	\$3.59	per barrel
FY 89	\$2.84	per barrel

General Fund Unrestricted Revenues

In Thousands of Current Dollars

<u>Taxes</u>	<u>FY 1987 Estimate June</u>	<u>FY 1988 Estimate June</u>	<u>FY 1989 Estimate June</u>
<u>Income</u>			
Corporate-General	14,000	15,000	15,500
Corporate-Petroleum	95,000	110,000	110,000
<u>Gross Receipts</u>			
Alaska Business License	2,000	2,000	2,000
Fish-Canned/Shorebased (1)	16,600	8,800	8,800
Fish-Floating	9,000	8,000	8,000
Seafood Marketing	1,400	1,200	1,200
Salmon Enhancement	4,200	3,800	3,800
Insurance Companies	23,600	22,000	21,000
Electric & Telephone Co-ops	1,900	1,900	1,900
Mining License Tax	300	400	400
<u>Severance</u>			
Oil & Gas Production (2)	624,300	637,900	630,400
Oil & Gas Conservation	800	700	700
<u>Property</u>			
Oil & Gas	109,000	80,000	71,000
<u>Sale/Use</u>			
Alcoholic Beverages	12,800	12,300	12,000
Fuel Taxes-Aviation (3)	8,100	7,800	7,700
Fuel Taxes-Highway (3)	17,500	18,900	18,700
Fuel Taxes-Marine (3)	5,000	4,700	4,600
Tobacco Products	6,600	6,400	6,300
<u>Other</u>			
Estate	1,100	700	700
Total Taxes	<u>953,200</u>	<u>942,500</u>	<u>924,700</u>
<u>Licenses & Permits</u>			
Business (4)	9,500	9,800	9,800
Non-Business	20,000	21,000	21,000
Total Licenses & Permits	<u>29,500</u>	<u>30,800</u>	<u>30,800</u>
<u>Intergovernmental Receipts</u>			
Federal Shared Revenues (5)	<u>8,800</u>	<u>8,500</u>	<u>8,500</u>
<u>State Resource Revenue</u>			
<u>Sale/Use</u>			
Bonus Sales (5) (6) (7) (8)	2,500	-0-	-0-
Investment Earnings (9)	160,000	100,000	65,000
Rents (5) (6) (7) (8)	5,500	6,000	6,500
Royalties (2) (5)	437,900	556,200	562,900
Sale of State Property	8,000	9,000	9,000
Gravel, Timber, etc. (10)	8,000	2,500	2,500
<u>Facilities Related Charges</u>			
Airports	1,600	1,600	1,600
Ferry System-Southeast	29,000	30,000	31,200
Ferry System-Southwest	3,800	3,900	4,000
Other	5,000	5,000	5,000

Service Related Charges

Court System	5,300	5,400	5,600
Other	6,000	4,700	4,800
Total State Resources			
Revenues	672,600	724,300	698,100
<u>Miscellaneous Revenues</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<u>Unrestricted Revenues</u>	<u>1,674,100</u>	<u>1,716,100</u>	<u>1,672,100</u>
Plus: Special Settlements (11)	67,200	-0-	-0-
<u>Total Unrestricted Revenues (12)</u>	<u>1,741,300</u>	<u>1,716,100</u>	<u>1,672,100</u>

(1) The FY 88 and FY 89 figures reflect the recent enactment of a shorebased fisheries business tax credit per Ch. 79, SLA 1986, effective July 1, 1986. The canned fisheries business tax has been combined into a single category with the shorebased since the tax credits are applied against the aggregate return and cannot be allocated by specific processing type.

(2) The FY 87 forecast assumes the mean case. The forecasted numbers for FY 88 and FY 89 assume the 30 percent case; however, if the mean case had been utilized for FY 88 and FY 89, the production taxes would change to \$717.9 million and \$732.3 million, respectively. The royalty figures would change to \$626.3 million and \$666.8 million respectively. All of the forecasted numbers include the estimated TAPS settlement.

(3) In FY 86 and FY 87 the Department of Revenue began to levy marine fuel taxes on watercraft motor fuel users who purchased fuel out-of-state but consumed fuel in transit through the state. On March 30, 1987, the State adopted hearing decision #87-07 which established that marine fuel users who merely consumed fuel in transit could not be retroactively taxed. In line with this decision, the Department of Revenue is refunding with interest any taxes collected under the earlier interpretation. This forecast estimates that refunds plus interest will total \$1.8 million and assumes that the majority of these refunds will be paid in FY 87. All motor fuel tax refunds are paid from the Highway Fuel Tax Account.

(4) Figures reflect the recent shift in occupational licensing fees and insurance permit fees from General Fund Unrestricted Revenues to Restricted Program Receipts.

(5) Net Permanent Fund contribution by Ch. 18 SLA 1980.

(6) Reflects state lease sales of \$0.9 million held June 24, 1986 (Sale 49 - Cook Inlet), and \$0.3 million held January 27, 1987 (Sale 51 - Prudhoe Bay Uplands). Due to the timing of collections, receipts from the June 1986 lease sale are shown as FY 87 revenue. The bonus figures represent the General Fund's 49.5 percent share.

(7) The FY 87 figure reflects the OCS "8(g)" revenue-sharing settlement of \$4.0 million. The General Fund share represents 49.5 percent of the aforementioned total, whereas the Permanent Fund will receive 50.0 percent. The remaining 0.5 percent will be distributed to the Public School Fund.

(8) The Department of Natural Resources projects the following FY 87, FY 88, and FY 89 state lease sales: FY 87 (Sale 50 - Camden Bay); FY 88 (Sale 54 - Kuparuk Upland, Sale 55 - Demarcation Point); and FY 89 (Sale 52 - Beaufort Sea, Sale 56 - Alaska Peninsula). However, bonus bids are impossible to anticipate prior to sales; therefore, no estimates are provided.

(9) The investment earning projections presented reflect the current composition of General Fund assets and current interest rates. The projections also reflect a drawdown in the level of the General Fund assets over the projection period. The projected drawdown in assets is a result of projected revenue cash inflows consistent with the current revenue forecast and projected expenditure cash outflows consistent with the estimated FY 88 operating budget which was passed by the Legislature before any gubernatorial vetoes. Also, no capital budget appropriations for FY 88 were factored into the expenditure cash outflow projection because no capital budget was passed by the Legislature.




(10) The FY 87 estimate reflects increased construction of roads and drilling pads as projected by the Department of Natural Resources.

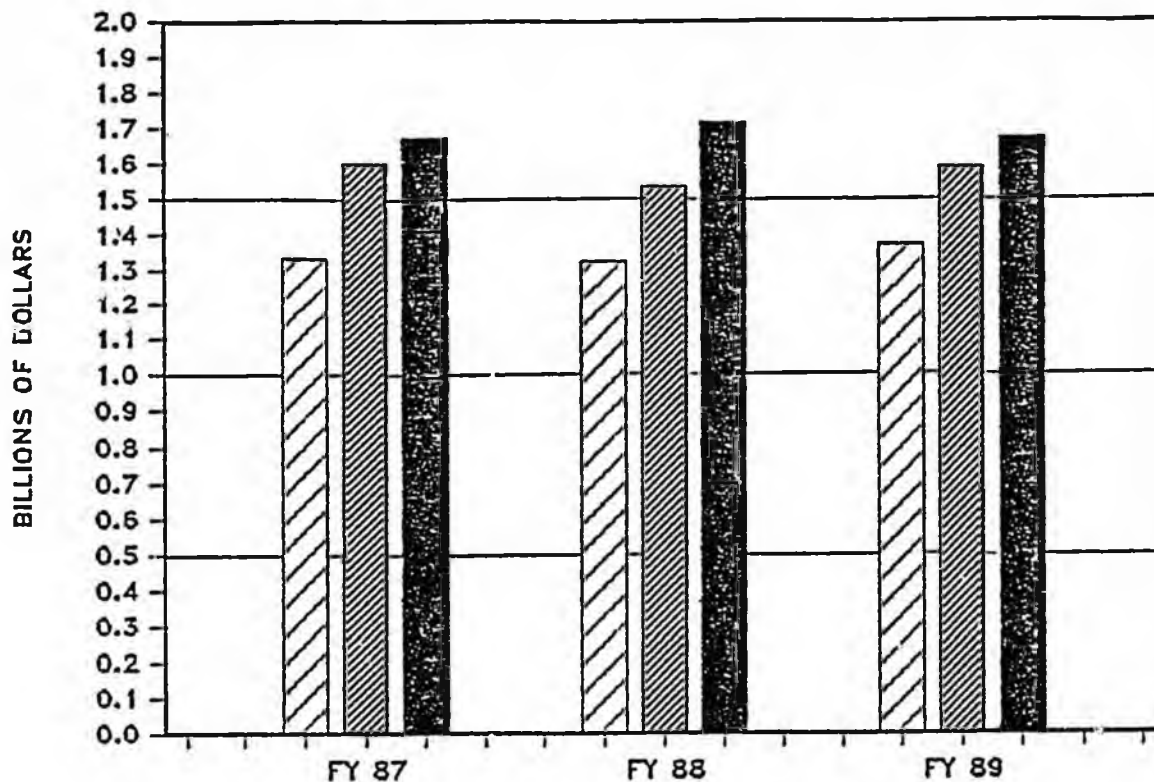
(11) The FY 87 figure reflects the estimated General Fund portion from refunds and expenses for prior years relative to the TAPS case (\$65.7 million) and court costs relative to the ARCO settlement (\$1.5 million). Consequently, \$67.2 million is projected to be received during FY 87, but this figure is subject to future audits.

(12) The State, per AS 39.05.180, will be granting incentive credits against royalties, severance taxes, and rentals to the oil companies for drilling exploratory wells. The deduction is approximately \$2.9 million which has not been subtracted from the aforementioned FY 87 figure of \$1,741.3 million. Additional credits are anticipated in subsequent years.

Unrestricted Revenues

Historical Comparison

 JANUARY 1987 ESTIMATES
 MARCH 1987 ESTIMATES
 JUNE 1987 ESTIMATES



FY 87 Estimates

January 1987	1.3342 billion
March 1987	1.5984 billion
June 1987	1.6741 billion

FY 88 Estimates

January 1987	1.3250 billion
March 1987	1.5326 billion
June 1987	1.7161 billion

FY 89 Estimates

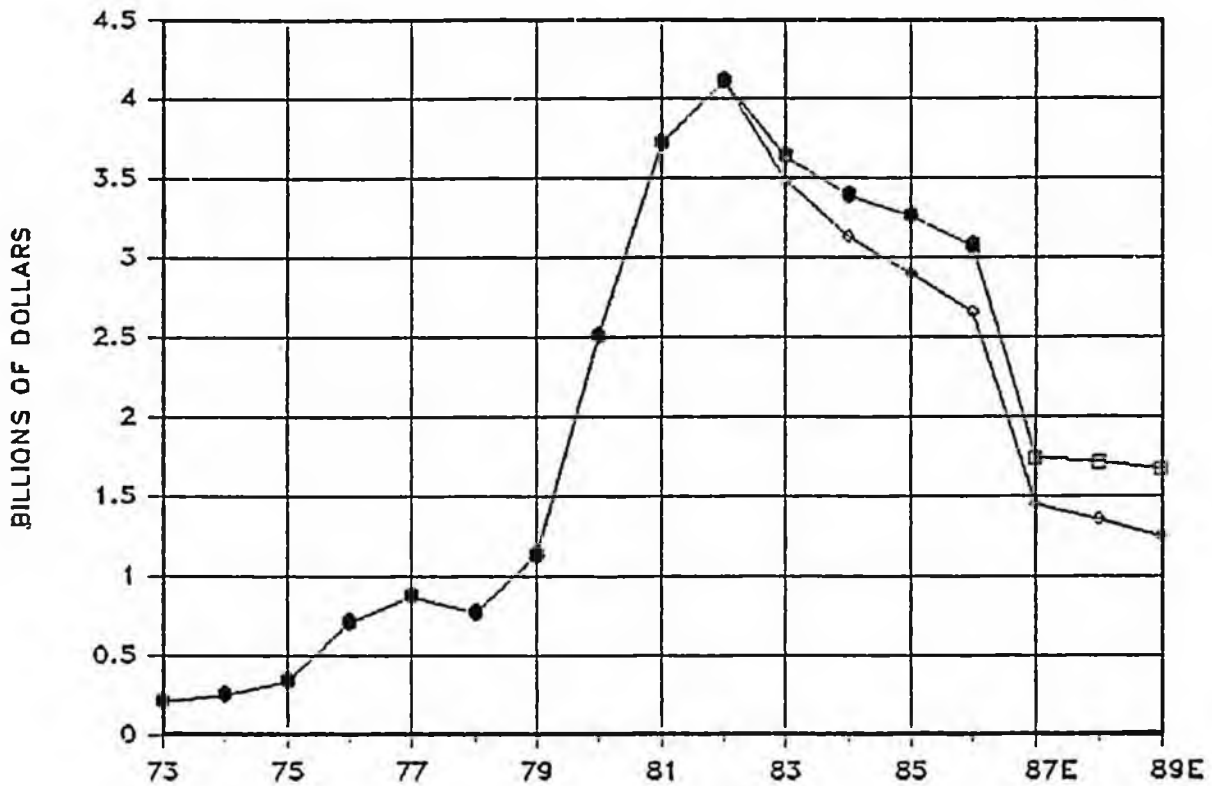
January 1987	1.3739 billion
March 1987	1.5897 billion
June 1987	1.6721 billion

* IT SHOULD BE NOTED THAT ALL "SPECIAL SETTLEMENTS" HAVE BEEN EXCLUDED IN FY 87 IN ORDER TO BE CONSISTENT IN COMPARING PRIOR FORECASTS. THE FY 87 BOTTOM LINE WOULD INCLUDE AN ADDITIONAL \$65.7 MILLION (TAPS REFUNDS/LEGAL EXPENSES) AND \$1.5 MILLION (ARCO COURT COSTS).

Unrestricted Revenues

(NOMINAL DOLLARS VS. REAL DOLLARS)

- ACTUALS(NOM\$)
- ESTIMATES(NOM\$)
- ◇ ACT/EST(REAL\$/1982)



Revenue Actuals (Nominal \$)

FY 73	.2082 billion
FY 74	.2549 billion
FY 75	.3334 billion
FY 76	.7098 billion
FY 77	.8743 billion
FY 78	.7649 billion
FY 79	1.1330 billion
FY 80	2.5012 billion
FY 81	3.7182 billion
FY 82	4.1084 billion
FY 83	3.6310 billion
FY 84	3.3901 billion
FY 85	3.2600 billion
FY 86	3.0755 billion

Revenue Estimates (Nominal \$)

FY 87	1.7413 billion
FY 88	1.7161 billion
FY 89	1.6721 billion

Revenue Actuals/Estimates (Real \$/1982)

FY 82	4.1084 billion
FY 83	3.4826 billion
FY 84	3.1347 billion
FY 85	2.9002 billion
FY 86	2.6584 billion
FY 87	1.4532 billion
FY 88	1.3587 billion
FY 89	1.2559 billion

Revenue Breakdown

The total General Fund unrestricted revenues for Fiscal Years 1987, 1988, and 1989 are projected to be \$1,741.3 million, \$1,716.1 million, and \$1,672.1 million, respectively.

The following table depicts a breakdown of General Fund unrestricted revenues in terms of petroleum versus non-petroleum revenues based on the June estimates:

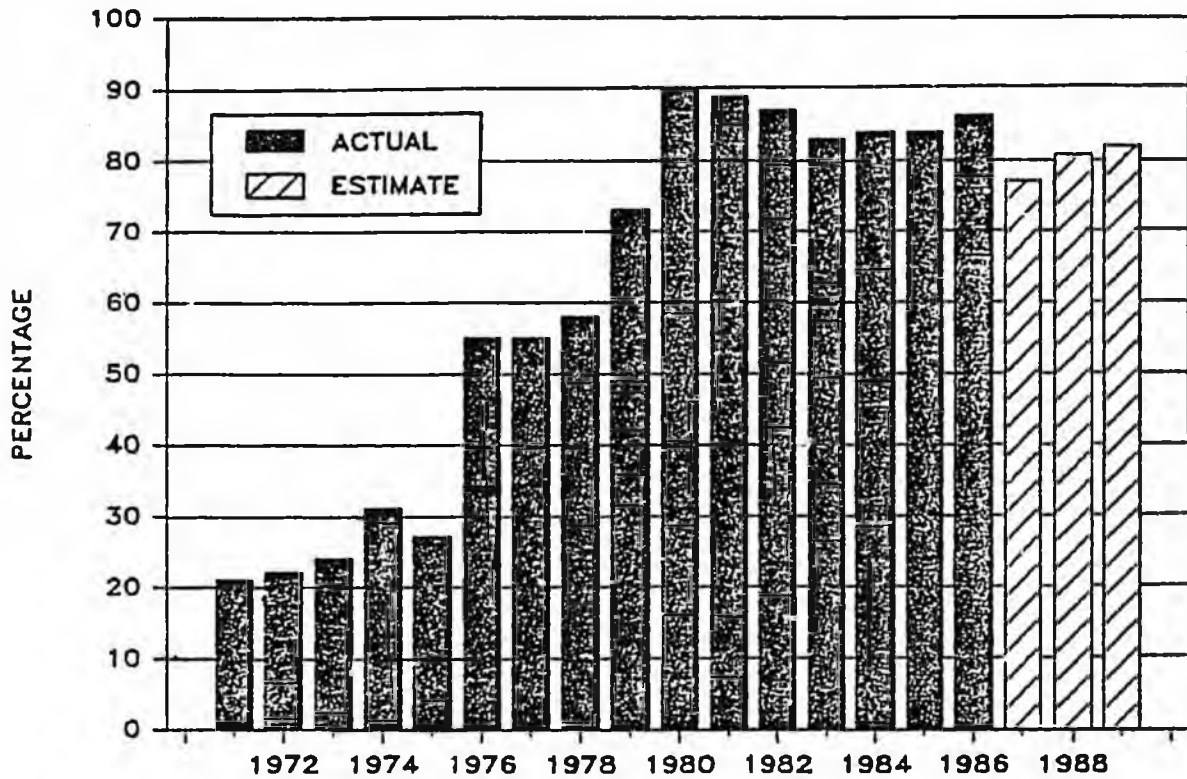
Petroleum vs. Non-Petroleum Revenues

(In Millions of Current Dollars)

	<u>Petroleum Revenues</u>		
	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>
Corporate Petroleum	95.0	110.0	110.0
Severance Tax	625.1	638.6	631.1
Royalties	437.9	556.2	562.9
Property Tax	109.0	80.0	71.0
Bonus Sale	2.5	-0-	-0-
Rents	3.5	4.0	4.5
Intergovernmental Receipts	8.7	8.4	8.4
Special Settlements	67.2	-0-	-0-
	<u>1,348.9</u>	<u>1,397.2</u>	<u>1,387.9</u>
	<u>Non-Petroleum Revenues</u>		
	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>
Taxes	124.1	113.9	112.6
Licenses & Permits	29.5	30.8	30.8
Intergovernmental Receipts	.1	.1	.1
State Resources Revenues	228.7	164.1	130.7
Miscellaneous Revenues	10.0	10.0	10.0
	<u>392.4</u>	<u>318.9</u>	<u>284.2</u>
Total	<u>1,741.3</u>	<u>1,716.1</u>	<u>1,672.1</u>

Petroleum Revenues

Historical Comparison of General Fund
Unrestricted Petroleum Revenues as Percentages
of General Fund Unrestricted Revenues
(in Millions of Current Dollars)



<u>Fiscal Year</u>	<u>Total General Fund Unrestricted Revenues</u>	<u>Total General Fund Unrestricted Petroleum Revenues</u>	<u>Percent</u>
1971	220.4	47.0	21
1972	219.2	48.4	22
1973	208.2	50.3	24
1974	254.9	80.2	31
1975	333.4	90.4	27
1976	709.8	391.5	55
1977	874.3	477.6	55
1978	764.9	441.5	58
1979	1,133.0	821.6	73
1980	2,501.2	2,256.5	90
1981	3,718.2	3,304.3	89
1982	4,108.4	3,574.8	87
1983	3,631.0	3,026.6	83
1984	3,390.1	2,861.6	84
1985	3,260.0	2,743.5	84
1986	3,075.5	2,657.9	86
1987*	1,741.3	1,348.9	77
1988*	1,716.1	1,397.2	81
1989*	1,672.1	1,387.9	83

* Estimate

Restricted Revenues

In Thousands of Current Dollars

	FY 1987 Estimate <u>June</u>	FY 1988 Estimate <u>June</u>	FY 1989 Estimate <u>June</u>
<u>Federal Grants-in-Aid</u>			
Education	46,800	47,800	47,800
Social Services	134,600	135,700	135,800
Health	3,800	3,800	3,800
Natural Resources	26,700	26,700	28,800
Pub. Prot./Admin. of Justice	9,200	9,000	9,200
Development/General Government	2,100	2,100	2,100
Transportation	<u>150,000</u>	<u>150,000</u>	<u>150,000</u>
Total Federal Grants-in-Aid	<u>373,200</u>	<u>375,100</u>	<u>377,500</u>
<u>Other Grants-in-Aid</u>			
Education	1,400	1,400	1,400
Health/Social Services	4,700	4,500	4,300
Natural Resources	2,800	2,800	2,700
Pub. Prot./Admin. of Justice	5,000	3,500	4,000
Development/General Government	6,100	6,000	5,300
Transportation	<u>900</u>	<u>900</u>	<u>900</u>
Total Other Grants-in-Aid	<u>20,900</u>	<u>19,100</u>	<u>18,600</u>
Miscellaneous Restricted Revenue-All Categories	<u>12,500</u>	<u>12,500</u>	<u>12,500</u>
Total Restricted Revenue ^{1/}	<u>406,700</u>	<u>406,700</u>	<u>408,600</u>
Total Unrestricted Revenue	<u>1,741,300</u>	<u>1,716,100</u>	<u>1,672,100</u>
Total General Fund Revenue	<u>2,148,000</u>	<u>2,122,800</u>	<u>2,080,700</u>

^{1/} Restricted Revenue figures may not agree with those shown in the Governor's budget due to categorical differences between the budget and accounting system.

ALASKA DEPARTMENT OF REVENUE
PETROLEUM RESEARCH
550 WEST 7TH AVENUE, SUITE 550
ANCHORAGE, ALASKA 99501

- - Permanent Fund Financial Projection - -

CASE 1 - \$509.9 MILLION FROM ERA AT FYE 88

Forecast: DOR, 6/87 (30th)

PF Status: 5/31/87

FY	PRINCIPAL						INCOME				Reserves		
	FY Begin Balance	Appro- priations	Dedicated State Revenues	Inflation Proofing	FY End Balance	Inflation Proofing Shortfall	Net Income	Divi- dends	Per Cap. Dividends	Inflation Proofing	Gen'l Fund	Add (Delete)	FY End Balance
88	0	0	54	0	54	0	2	0		0		0	0
89	54	0	84	0	139	0	8	0		0	7	0	0
90	139	0	344	0	483	0	32	12		0	12	0	0
91	483	900	385	0	1,769	0	150	28		0	28	59	59
92	1,769	800	401	0	2,969	0	368	71	\$1,000	0	71	185	244
93	2,969	400	421	231	4,021	0	471	108	\$386	231	110	110	354
94	4,021	300	366	151	4,838	0	530	175	\$331	151		204	557
95	4,838	300	368	235	5,741	0	658	217	\$404	235		206	763
96	5,741	0	323	216	6,281	0	1,021	303	\$556	216		501	1,264
97	6,281	1,264	156	148	7,849	(0)	1,054	390	\$718	148		516	516
98	7,849	0	192	322	8,363	0	797	424	\$791	322	509.9	(459)	58
99	8,363	0	196	407	8,966	106	803	453	\$841	407		(58)	0
00	8,966	0	203	381	9,550	170	855	474	\$877	381		0	0
01	9,550	0	185	445	10,180	139	909	463	\$852	445		0	0
02	10,180	0	199	514	10,893	109	969	455	\$832	514		0	0
03	10,893	0	208	556	11,657	110	1,036	480	\$875	556		0	0
04	11,657	0	209	596	12,463	116	1,109	512	\$930	596		0	0
05	12,463	0	203	637	13,303	123	1,184	547	\$989	637		0	0
06	13,303	0	195	679	14,177	131	1,263	584	\$1,052	679		0	0
07	14,177	0	188	722	15,087	140	1,345	623	\$1,119	722		0	0
08	15,087	0	187	766	16,039	151	1,431	665	\$1,189	766		0	0
09	16,039	0	183	812	17,034	161	1,520	708	\$1,261	812		0	0
10	17,034	0	180	861	18,074	172	1,614	753	\$1,336	861		0	0
11	18,074	0	172	911	19,158	184	1,711	800	\$1,414	911		0	0
12	19,158	0	165	964	20,286	195	1,813	849	\$1,495	964		0	0
13	20,286	0	162	1,019	21,468	208	1,920	901	\$1,579	1,019		0	0
14	21,468	0	159	1,076	22,703	221	2,031	954	\$1,667	1,076		0	0
15	22,703	0	156	1,137	23,995	235	2,147	1,010	\$1,758	1,137		0	0
CUMULATIVE TOTALS, FY 87-91:					10,180	415	4,418	2,205	\$4,079	1,703	510		0
CUMULATIVE TOTALS, FY 87-05:					23,995	2,670	25,509	12,047	\$21,574	12,953	510		0

ASSUMPTIONS

1.92% Inflation Rate FY 87
14.02% Rate of Return FY 87

4.00% Inflation Rate FY 88
9.00% Rate of Return FY 88

6.00% Average Inflation Rate FY 89-05
9.00% Average Rate of Return FY 89-05

* SOURCE: Policy Division, Office of the Governor

- - Permanent Fund Financial Projection - -

BASE CASE - CURRENT LAW

Forecast: DOR, 6/87 (30th)

PF Status: 5/31/87

FY	PRINCIPAL						INCOME				Reserves		
	FY Begin Balance	Appro- priations	Dedicated State Revenues	Inflation Proofing	FY End Balance	Inflation Proofing Shortfall	Net Income	Divi- dends	Per Cap. Dividends	Inflation Proofing	Gen'l Fund	Add (Delete)	FY End Balance
78	0	0	54	0	54	0	2	0		0	1	0	0
79	54	0	84	0	139	0	8	0		0	7	0	0
80	139	0	344	0	483	0	32	12		0	12	0	0
81	483	900	385	0	1,769	0	150	28		0	28	59	59
82	1,769	800	401	0	2,969	0	368	71	\$1,000	0	71	185	244
83	2,969	400	421	231	4,021	0	471	108	\$386	231	110	110	354
84	4,021	300	366	151	4,838	0	530	175	\$331	151		204	557
85	4,838	300	368	235	5,741	0	658	217	\$404	235		206	763
86	5,741	0	323	216	6,281	0	1,021	303	\$556	216		501	1,264
87	6,281	1,264	156	148	7,849	(0)	1,054	390	\$718	148		516	516
88	7,849	0	192	322	8,363	0	797	424	\$791	322		51	567
89	8,363	0	196	514	9,072	0	851	458	\$851	514		(121)	447
90	9,072	0	203	557	9,832	0	907	485	\$897	557		(134)	312
91	9,832	0	185	601	10,618	0	965	480	\$883	601		(116)	196
92	10,618	0	199	649	11,466	0	1,029	478	\$875	649		(98)	98
93	11,466	0	208	689	12,362	12	1,100	509	\$929	689		(98)	0
94	12,362	0	209	632	13,203	123	1,175	543	\$987	632		0	0
95	13,203	0	203	674	14,080	130	1,254	580	\$1,050	674		0	0
96	14,080	0	195	717	14,993	139	1,336	619	\$1,116	717		0	0
97	14,993	0	188	762	15,942	149	1,422	660	\$1,186	762		0	0
98	15,942	0	187	808	16,937	160	1,511	703	\$1,259	808		0	0
99	16,937	0	183	856	17,975	171	1,605	748	\$1,335	856		0	0
00	17,975	0	180	907	19,062	182	1,703	796	\$1,413	907		0	0
01	19,062	0	172	960	20,194	194	1,805	845	\$1,495	960		0	0
02	20,194	0	165	1,015	21,374	207	1,911	896	\$1,579	1,015		0	0
03	21,374	0	162	1,072	22,609	220	2,022	950	\$1,667	1,072		0	0
04	22,609	0	159	1,132	23,900	234	2,138	1,006	\$1,758	1,132		0	0
05	23,900	0	156	1,196	25,251	248	2,260	1,064	\$1,853	1,196		0	0
CUMULATIVE TOTALS, FY 87-91:					10,618	0	4,574	2,237	\$4,140	2,141	0		196
CUMULATIVE TOTALS, FY 87-05:					25,251	2,168	26,842	12,633	\$22,642	14,209	0		0

----- ASSUMPTIONS -----

1.92% Inflation Rate FY 87
14.02% Rate of Return FY 87

6.00% Average Inflation Rate FY 89-05
9.00% Average Rate of Return FY 89-05

4.00% Inflation Rate FY 88
9.00% Rate of Return FY 88

* SOURCE: Policy Division, Office of the Governor

Government Finance Associates, Inc.

Biographical Sketch of J. Chester Johnson

J. Chester Johnson is president of Government Finance Associates, Inc., which provides independent financial advisory services, primarily in connection with the issuance of debt securities, to state and local governments and authorities. Mr. Johnson has been active in the tax-exempt finance field since 1968. For several years as a credit analyst for tax-exempt issues at Moody's Investors Service, the national credit agency, he was in charge of ratings assigned to securities sold by state and local governments and their authorities for a ten-state area. In 1972, Mr. Johnson joined Morgan Guaranty Trust Company of New York where he became Vice President and Head of the Public Finance Research and Advisory Group. In this capacity, he was responsible for approving tax-exempt securities purchased by the bank and for advising state and local governmental issuers on debt management matters.

In addition, Mr. Johnson has been active in industry-related matters, including the development of disclosure standards for the tax-exempt market as a member of the drafting committee, Disclosure Guidelines for Offerings of Securities By State and Local Governments, published in 1976 by the Municipal Finance Officers Association. In 1977, he was nominated and appointed to the position of Deputy Assistant Secretary for State and Local Finance at the U.S. Treasury Department. In this role, Mr. Johnson was responsible for, among other duties, administering the Federal Government's loan program to New York City and assisting in the development of Administration policy and programs affecting state and local finances. Mr. Johnson has written and spoken extensively on the subject of tax-exempt financing. Among the groups he has addressed are the National League of Cities, the U.S. Conference of Mayors, National Conference of State Legislatures, Council of State Governments, National Governors Conference, and the Municipal Finance Officers Association. Mr. Johnson received his BSE from the University of Arkansas and also attended Harvard University.

Staats M. Pellett, Jr.
Senior Vice President

Mr. Pellett is in charge of tax-exempt bond investments. He was educated at Columbia University, where he received a B.A. degree in 1953. Prior to joining Bessemer in 1967, he was Vice President of Fireman's Fund Insurance Company in San Francisco, in charge of their \$1 billion municipal bond portfolio. His experience also includes ten years as a municipal bond analyst with Moody's Investor's Service, Inc. and Goldman Sachs & Co. Mr. Pellett is a member of the Municipal Forum of New York, Security Analysts of San Francisco, Society of Municipal Analysts (1977 President), New York Municipal Analysts Group and served a three year term as a Public Member of the Municipal Securities Rulemaking Board. He is a Chartered Financial Analyst.

THE BESSEMER ORGANIZATION

Introduction

Bessemer provides investment management services (including custody services) to substantial individual clients and family groups located worldwide and to employee benefit plans, foundations and endowment funds. We actively manage diversified portfolios of marketable U.S. and non-U.S. securities and, where appropriate, make direct investments in real estate, oil and gas and privately held companies.

We believe the following characteristics distinguish Bessemer from its competitors:

- Our equity and balanced fund investment performance has consistently ranked in the top quartile of the SEI universe of investment managers for the cumulative annual period since 1976.
- Our flexible equity style of buying stocks which represent the best value of the particular market environment permits us to take greater risks in rising markets and preserve those gains during periods of market decline.
- Our highly qualified professional staff and breadth of investment expertise enables us to:
 - successfully analyze the relative attractiveness of various investment alternatives and,
 - offer a full range of investment products and advisory services to clients seeking broad investment diversification with one manager.

Organization

The Bessemer Group, Incorporated, a holding company, is engaged in the financial services business. Investment, trust and custody services are provided by its wholly owned subsidiaries: Bessemer Trust Company, N.A., a federally chartered bank founded in 1974 in New York City, Bessemer Trust Company, a state chartered bank founded in 1907 in New Jersey and Bessemer Trust Company of Florida, founded in 1929 in Palm Beach.

Bessemer also maintains two representative offices located in Washington, D.C. and Miami, Florida. In 1986 an investment management office was established in London, England.

Ownership of The Bessemer Group is held primarily by trusts for the benefit of the descendants of Henry Phipps (a partner of Andrew Carnegie in the Carnegie Steel Company) and by senior professional staff members under a Phantom Stock Plan.

THE BESSEMER ORGANIZATION

Client Profile

The Bessemer Group had total assets under management of approximately \$5.1 billion as of December 31, 1986. Our clients include substantial U.S. resident and nonresident individuals, foreign investment companies and foreign trusts, tax-exempt U.S. and non-U.S. charitable organizations and corporate employee benefit plans. The profile of our client base can be summarized as follows:

	<u>Number of Clients</u>	<u>\$ Millions</u>
Individuals	451	\$3,568.2
Corporations	25	877.0
Tax-Exempt Accounts:		
• Endowment & Foundation	36	383.5
• Employee Benefit (ERISA)	32	277.8
• Mutual Funds	<u>2</u>	<u>31.3</u>
TOTAL FUNDS MANAGED	<u>546</u>	<u>\$5,137.9</u>

Assets Under Management

Of the \$5.1 billion under Bessemer management, approximately \$2.1 billion is invested in marketable stocks and \$2.0 billion in fixed income obligations (including cash equivalents), with the balance (\$1.0 billion) represented in closely held stock, real estate, mortgages and miscellaneous assets.

Composite of Assets Under Management As of December 31, 1986

Cash & Short-Term Investments	\$ 802.7 Million
Fixed Income	1,193.9
Equity	2,064.6
Closely Held Stocks	935.2
Mortgages & Receivables	16.7
Miscellaneous Assets (real estate, oil & gas, private investments, etc.)	124.8
	<hr/>
	<u>\$ 5,137.9 Million</u>

INSTITUTIONAL CLIENTS
(Representative List)

Employee Benefit

W.R. Grace & Company (New York, New York)
Baltimore Gas & Electric Co. (Baltimore, Maryland)
USF&G Company (Baltimore, Maryland)
New York State Electric & Gas Company (Ithaca, New York)
B.F. Saul Real Estate Investment Trust (Chevy Chase, Maryland)
New York State Bankers Association (New York, New York)
Toronto Dominion Bank USA Pension Plan (Toronto, Canada)
Publishers Association of New York City (New York, New York)

Endowment

Colgate University (Hamilton, New York)
University of Akron (Akron, Ohio)
The Chapin School (New York, New York)
United States Naval Academy (Annapolis, Maryland)
Chamber Music Society of Lincoln Center, Inc. (New York, New York)
Millbrook School (Millbrook, New York)
The College of Great Falls (Great Falls, Montana)

Foundation

American Hospital of Paris Foundation Inc. (Paris, France)
Eye & Ear Foundation (Pittsburgh, Pennsylvania)
Wardham Foundation, Inc. (Grafton, Vermont)
American Cathedral in Paris Foundation (Paris, France)

Corporate

Colt Industries Inc. (New York, New York)
Outlook, Inc. (Rehoboth Beach, Delaware)

Name: William R. Gamble

Age: 58

Residence: Minneapolis, Minnesota

Employer: First Bank System, Inc.
Minneapolis, Minnesota

Job Description: Vice President
Funds Management Department
Manager of Municipal Bond Portfolio
Municipal Bonds Managed - \$1.1 Billion
(5-31-87)

Memberships: Society of Municipal Analysts - Associate
Asset and Liability Managers Association

First Bank System, Inc.: First Bank System, Inc. is the 15th largest bank holding company in the United States having been organized in 1929. Our assets as of March 31, 1987 totaled \$28.4 billion. Our net income for 1986 was \$202.9 million, up 21.7% from the previous year. Return on equity was 16%.

Previous Work Responsibilities: I have been employed by First Bank System since 1955 (32 years). I have been working in Portfolio Management since 1964 and have had sole responsibility for the municipal bonds since 1967.

Alaska Holdings: We presently own \$13.9 million in various Alaska municipalities.

Total assets for First Bank System at March 31, 1987, were \$28.4 billion, up 9.7 percent from March 31, 1986, and up 1.3 percent from December 31, 1986. Loans totaled \$14.0 billion, compared with \$14.3 billion at the end of the first quarter last year, reflecting both sluggish loan demand and more selective lending activity. At March 31, 1987, First Bank System's primary capital totaled \$2.044 billion, representing 7.1 percent of total assets. Common shareholder equity totaled \$1.361 billion, or \$23.32 per share at March 31, 1987, compared with \$1.182 billion, or \$21.03 per share a year ago.

First Bank System, Inc., is the 15th largest bank holding company in the United States comprised of First Bank Minneapolis, First Bank Saint Paul, and 72 other banks and trust companies, with 144 banking offices in Minnesota, North Dakota, South Dakota, Montana, Washington, and Wisconsin. The company also provides financial services through a number of domestic and international subsidiaries and offices. These services include trust, international banking, commercial and agricultural finance, capital markets, data processing, insurance brokerage, leasing, mortgage banking, venture capital, merchant banking and brokerage services.

1 IN THE HOUSE

BY THE FINANCE COMMITTEE

2 HOUSE CONCURRENT RESOLUTION NO.

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FIFTEENTH LEGISLATURE - FIRST SPECIAL SESSION

5 Suspending Uniform Rules 42(c) and (e)
6 of the Alaska State Legislature concern-
7 ing Senate Bill 157.

8 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

9 That under Rule 54 of the Uniform Rules of the Alaska State Legisla-
10 ture the provisions of Rule 42(c) of the Uniform Rules, restricting a
11 report of a conference committee with limited powers of free conference or
12 of a free conference committee regarding an appropriation bill, and Rule
13 42(e) of the Uniform Rules, relating to a change in the title of a bill,
14 are suspended in consideration of Senate Bill 157, relating to appropria-
15 tions.
16
17
18
19
20
21
22
23
24
25
26
27
28
29

MEMORANDUM

TO: Mary Halloran
Director,
Division of Policy
Office of the Governor

DATE: July 1, 1987

FROM: Jack Fagnoli *JF*
Senior Analyst

RE: **Effects On Permanent Fund of Governor's Proposal**

This memorandum summarizes the potential effects on the Permanent Fund of Governor Cowper's proposal to use Permanent Fund reserve earnings to offset a projected budget deficit of approximately \$509.9 million at the close of Fiscal Year 1988 (FYE 88).

The figure of \$509.9 million includes the \$250 million that the Governor proposes be appropriated from the General Fund to the Budget Reserve Fund, and the budget shortfall that would result from the June 1987 30th percentile revenue forecast.

Attachments

Two tables are attached. One, titled "Base Case - Current Law", projects Permanent Fund performance under current law; i.e., if no withdrawals were to be made from the Permanent Fund's Earnings Reserve Account (ERA). The second, titled "Case 1 - \$509.9 Million From ERA At FYE 88", shows the projected effects on the Permanent Fund if \$509.9 million were to be appropriated from the Earnings Reserve Account at the close of FY 88.

Permanent Fund Corporation projections of earnings and inflation rates have been used in making these estimates. (See attached tables.)

All figures are shown in millions of dollars (nominal).

Impacts On Permanent Fund

The overall effects of the proposal on the Permanent Fund are summarized below:

o Fund Principal (End Balance)

	<u>By FYE 91</u>	<u>By FYE 2005</u>
Base Case	10,618	25,251
Proposal	10,180	23,995
Difference:	(438)	(1,256)

o Inflation-Proofing And Reserves

As with any withdrawal of Permanent Fund reserve earnings, the proposal increases the possibility that (in the event of low Fund earnings in the future) reserves may not be sufficient to ensure full inflation-proofing of the Fund or the protection of Dividends.

o Earnings (Net Income)

	<u>By FYE 91</u>	<u>By FYE 2005</u>
Base Case	4,574	26,842
Proposal	4,418	25,509
Difference:	(156)	(1,333)

o Cumulative Amount Available For Dividends

	<u>By FYE 91</u>	<u>By FYE 2005</u>
Base Case	2,237	12,633
Proposal	2,205	12,047
Difference:	(32)	(586)

o Per Capita Dividends

	<u>Base Case</u>	<u>Proposal</u>	<u>Difference</u>
87	\$718	\$718	-0-
88	\$791	\$791	-0-
89	\$851	\$841	(\$10)
90	\$897	\$877	(\$20)
91	\$883	\$852	(\$31)
Total:	\$4,140	\$4,079	(\$61)
Avg:	\$ 828	\$ 815	(\$12)

Through FY 2005, the proposal's overall effects on per capita dividend distributions would be:

	<u>Base Case</u>	<u>Proposal</u>	<u>Difference</u>
Total:	\$22,642	\$21,574	(\$1,068)
Avg:	\$ 1,192	\$ 1,135	(\$56)

- - Permanent Fund Financial Projection - -

BASE CASE - CURRENT LAW

Forecast: DOR, 6/87 (30th)

PF Status: 5/31/87

FY	PRINCIPAL						INCOME					Reserves	
	FY Begin Balance	Appro- priations	Dedicated State Revenues	Inflation Proofing	FY End Balance	Inflation Proofing Shortfall	Net Income	Divi- dends	Per Cap. Dividends	Inflation Proofing	Gen'l Fund	Add (Delete)	FY End Balance
78	0	0	54	0	54	0	2	0		0	1	0	0
79	54	0	84	0	139	0	8	0		0	7	0	0
80	139	0	344	0	483	0	32	12		0	12	0	0
81	483	900	385	0	1,769	0	150	28		0	28	59	59
82	1,769	800	401	0	2,969	0	368	71	\$1,000	0	71	185	244
83	2,969	400	421	231	4,021	0	471	102	\$386	231	110	110	354
84	4,021	300	366	151	4,838	0	530	175	\$331	151		204	557
85	4,838	300	368	235	5,741	0	658	217	\$404	235		206	763
86	5,741	0	323	216	6,281	0	1,021	303	\$556	216		501	1,264
87	6,281	1,264	156	148	7,849	(0)	1,054	390	\$718	148		516	516
88	7,849	0	192	322	8,363	0	797	424	\$791	322		51	567
89	8,363	0	196	514	9,072	0	851	458	\$851	514		(121)	447
90	9,072	0	203	557	9,832	0	907	485	\$897	557		(134)	312
91	9,832	0	185	601	10,618	0	965	480	\$883	601		(116)	196
92	10,618	0	199	649	11,466	0	1,029	478	\$875	649		(98)	98
93	11,466	0	208	689	12,362	12	1,100	509	\$929	689		(98)	0
94	12,362	0	209	632	13,203	123	1,175	543	\$987	632		0	0
95	13,203	0	203	674	14,080	130	1,254	580	\$1,050	674		0	0
96	14,080	0	195	717	14,993	139	1,336	619	\$1,116	717		0	0
97	14,993	0	188	762	15,942	149	1,422	660	\$1,186	762		0	0
98	15,942	0	187	809	16,937	160	1,511	703	\$1,259	808		0	0
99	16,937	0	183	856	17,975	171	1,605	748	\$1,335	856		0	0
0	17,975	0	180	907	19,062	182	1,703	796	\$1,413	907		0	0
1	19,062	0	172	960	20,194	194	1,805	845	\$1,495	960		0	0
2	20,194	0	165	1,015	21,374	207	1,911	896	\$1,579	1,015		0	0
3	21,374	0	162	1,072	22,609	220	2,022	950	\$1,667	1,072		0	0
4	22,609	0	159	1,132	23,900	234	2,138	1,006	\$1,758	1,132		0	0
5	23,900	0	156	1,196	25,251	248	2,260	1,064	\$1,853	1,196		0	0
CUMULATIVE TOTALS, FY 87-91:					10,618	0	4,574	2,237	\$4,140	2,141	0		196
CUMULATIVE TOTALS, FY 87-05:					25,251	2,168	26,842	12,633	\$22,642	14,209	0		0

ASSUMPTIONS

1.92% Inflation Rate FY 87
14.02% Rate of Return FY 87

6.00% Average Inflation Rate FY 89-05
9.00% Average Rate of Return FY 89-05

4.00% Inflation Rate FY 88
9.00% Rate of Return FY 88

* SOURCE: Policy Division, Office of the Governor

CASE 1 - \$509.9 MILLION FROM ERA AT FYE 88

Forecast: DOR, 6/87 (30th)

PF Status: 5/31/87

FY	PRINCIPAL						INCOME					Reserves	
	FY Begin Balance	Appro- priations	Dedicated State Revenues	Inflation Proofing	FY End Balance	Inflation Proofing Shortfall	Net Income	Divi- dends	Per Cap. Dividends	Inflation Proofing	Gen'l Fund	Add (Delete)	EY End Balance
78	0	0	54	0	54	0	2	0		0	1	0	0
79	54	0	84	0	139	0	8	0		0	7	0	0
80	139	0	344	0	483	0	32	12		0	12	0	0
81	483	900	385	0	1,769	0	150	28		0	28	59	59
82	1,769	800	401	0	2,969	0	368	71	\$1,000	0	71	185	244
83	2,969	400	421	231	4,021	0	471	108	\$386	231	110	110	354
84	4,021	300	366	151	4,838	0	530	175	\$331	151		204	557
85	4,838	300	368	235	5,741	0	658	217	\$404	235		206	763
86	5,741	0	323	216	6,281	0	1,021	303	\$556	216		501	1,264
87	6,281	1,264	156	148	7,849	(0)	1,054	390	\$718	148		516	516
88	7,849	0	192	322	8,363	0	797	424	\$791	322	509.9	(459)	58
89	8,363	0	196	407	8,966	106	803	453	\$841	407		(58)	0
90	8,966	0	203	381	9,550	170	855	474	\$877	381		0	0
91	9,550	0	185	445	10,180	139	909	463	\$852	445		0	0
92	10,180	0	199	514	10,893	109	969	455	\$832	514		0	0
93	10,893	0	208	556	11,657	110	1,036	480	\$875	556		0	0
94	11,657	0	209	596	12,463	116	1,109	512	\$930	596		0	0
95	12,463	0	203	637	13,303	123	1,184	547	\$989	637		0	0
96	13,303	0	195	679	14,177	131	1,263	584	\$1,052	679		0	0
97	14,177	0	188	722	15,087	140	1,345	623	\$1,119	722		0	0
98	15,087	0	187	766	16,039	151	1,431	665	\$1,189	766		0	0
99	16,039	0	183	812	17,034	161	1,520	708	\$1,261	812		0	0
0	17,034	0	180	861	18,074	172	1,614	753	\$1,336	861		0	0
1	18,074	0	172	911	19,158	184	1,711	800	\$1,414	911		0	0
2	19,158	0	165	964	20,286	195	1,813	849	\$1,495	964		0	0
3	20,286	0	162	1,019	21,468	208	1,920	901	\$1,579	1,019		0	0
4	21,468	0	159	1,076	22,703	221	2,031	954	\$1,667	1,076		0	0
5	22,703	0	156	1,137	23,995	235	2,147	1,010	\$1,758	1,137		0	0
CUMULATIVE TOTALS, FY 87-91:					10,180	415	4,418	2,205	\$4,079	1,703	510		0
CUMULATIVE TOTALS, FY 87-05:					23,995	2,670	25,509	12,047	\$21,574	12,953	510		0

ASSUMPTIONS

1.92% Inflation Rate FY 87
14.02% Rate of Return FY 87

6.00% Average Inflation Rate FY 89-05
9.00% Average Rate of Return FY 89-05

4.00% Inflation Rate FY 88
9.00% Rate of Return FY 88

* SOURCE: Policy Division, Office of the Governor

STATE OF ALASKA
DEPARTMENT OF REVENUE

M E M O R A N D U M

TO: Hugh Malone
Commissioner
Department of Revenue

FROM: Milt Barker *MB*
Deputy Commissioner
Treasury Division

DATE: July 2, 1987

RE: FY 88 General Fund Deficit and Cash Balance

FY 88 General Fund Deficit

The deficit figure is the amount by which appropriations exceed revenues. The estimated general fund deficit at the end of FY 88 will be \$258 million assuming:

1. no bonding for student loans;
2. no expenditure from the general fund for salary negotiations pursuant to Sec. 22 of CCS HB 75;
3. June 1987 revenue estimates (mean for FY 87 and 30th percentile for FY 88) increased by \$33 million due to updated information on tax receipts and the Camden Bay lease sale;
4. \$82 million FY 88 capital budget; and
5. \$86 million lapsing of capital project appropriations as a result of DOTPF's review of all capital projects.

The \$258 million deficit figure reflects \$15 million of FY 88 vetoes net of overrides. Bonding for student loans would reduce the deficit by \$41 million. Full expenditure of the Sec. 22 appropriation would increase the deficit by \$40.8 million, as currently estimated by OMB, although this figure may be revised downward.

The \$258 million deficit is composed of a deficit of approximately \$256 million for FY 88 and a deficit of \$2 remaining from FY 87.

FY 88 General Fund Cash Balance

The projected general fund cash balance will be \$303 million at the end of FY 88, using the same assumptions as for the deficit. This will be a

Hugh Malone
July 2, 1987
Page 2

decrease of \$431 million from the FY 87 year-end balance of \$734 million. The low point in the general fund is estimated to be \$158 million on June 29, 1988. If \$250 million is appropriated and deposited to the budget reserve fund early in FY 88, a cash shortage will arise during March, 1988, increase to a negative \$92 million on June 29, 1988, and rebound to a \$53 million positive balance on June 30, 1988.

The decrease (drawdown) in the general fund cash balance represents the amount by which expenditures exceed revenues, while the deficit is the amount by which appropriations exceed revenues. The projected \$431 million drawdown during FY 88 is basically a result of the FY 88 deficit of \$256 million plus expenditures on prior year capital appropriations.^{1/}

^{1/} In past years, the deficits for the year resulted in drawdowns totalling significantly less than the deficits because a major part of the budget was capital projects which are not entirely expended in the year of appropriation.

MB/mem

STEVE COWPER
GOVERNOR



STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

HB 3-1

July 1, 1987

The Honorable Ben Grussendorf
Speaker of the House
Alaska State Legislature
P.O. Box V
Juneau, AK 99811

Dear Representative Grussendorf:

Under the authority of art. III, sec. 18, of the Alaska Constitution, I am transmitting a bill appropriating money from the general fund to the budget reserve fund (AS 37.05.156), and balancing the budget. This bill appropriates \$250,000,000 to the budget reserve fund to provide emergency cash to protect the state from future abrupt drops in oil revenue. This bill also appropriates a sufficient amount of money, to cover whatever deficit may exist after the end of fiscal year 1988, from the earnings reserve account (formerly called the "undistributed income account," AS 37.13.145) of the Alaska permanent fund to the general fund. If an insufficient amount is available from the earnings reserve account, then the entire amount is appropriated to the general fund.

The deficit for fiscal year 1988 is identified in the bill by reference to the specific line that reports that figure in the state's annual financial report.

Sincerely,



Steve Cowper

Original sponsor: Rules/Governor

1 IN THE SENATE BY THE FINANCE COMMITTEE
2 HOUSE CS FOR CS FOR SENATE BILL NO. 157 (Finance) am H
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
4 FIFTEENTH LEGISLATURE - FIRST SESSION
5 A BILL
6 For an Act entitled: "An Act appropriating from the earnings reserve
7 account of the Alaska permanent fund to the general
8 fund."
9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:
10 * Section 1. The sum of \$516,000,000 is appropriated from the earnings
11 reserve account of the Alaska permanent fund (AS 37.13.145) to the budget
12 reserve fund (AS 37.05.156); however, the amount appropriated shall be
13 transferred from the earnings reserve account to the budget reserve fund
14 only as necessary to meet the requirements of sec. 2 of this Act.
15 * Sec. 2. The appropriation made in sec. 1 of this Act is appropriated
16 from the budget reserve fund to the general fund. This appropriation may
17 be transferred to the general fund for expenditure upon a monthly deter-
18 mination by the Department of Revenue that the cash balance of the general
19 fund in the state treasury will be insufficient to pay obligations of the
20 general fund under appropriations at any time during fiscal year 1988.
21 Only the amount required to pay those obligations may be transferred or
22 expended.
23 * Sec. 3. The amount appropriated by this Act that is not transferred
24 under sec. 2 of this Act lapses into the earnings reserve account of the
25 Alaska permanent fund (AS 37.13.145) June 29, 1988.

Original sponsor: Rules/Governor

Funding Information

General Fund	\$	-0-
Other Funds		-0-
	\$	-0-

1 IN THE HOUSE BY THE RULES COMMITTEE

2 CS FOR HOUSE BILL NO. 166 (Rules)

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FIFTEENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act making an appropriation from the general fund
7 to the budget reserve fund of any positive amount in
8 the general fund balance on June 30, 1988, as re-
9 ported on the combined balance sheet in the state's
10 annual financial report for fiscal year 1988."

11 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

12 * Section 1. If the "Available Fund Equity/Balance" for the general
13 fund as reported for June 30, 1988, on the "State of Alaska, All Fund Types
14 and Account Groups, Combined Balance Sheet" in the state's "Annual Finan-
15 cial Report" for fiscal year 1988, published under AS 37.05.210(2) is a
16 positive amount, that amount is appropriated from the general fund to the
17 budget reserve fund (AS 37.05.156).